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ABSTRACT

To examine how skilled and experienced teachers interact with pupils of varying abilities, an observational coding system was developed that focused on reading-oriented and classroom-behavior-oriented interactions. The teacher/child interactions of two experienced teachers who were acknowledged for their success in teaching reading were studied intensively, and the results were compared with the findings of a survey of the dyadic interactions of five randomly chosen second-grade teachers. In the study of the two teachers, there was a trend toward shorter and less frequent interactions between teachers and high achievers than between teachers and low achievers in the subcategories reading-oriented praise and instruction. Compared with the five randomly selected teachers, the teachers noted for their skill and experience were more sensitive to the needs of the individual child and showed more distinct patterns that distinguished between children. Praise was highly correlated with reading achievement: low achievers received frequent praise and higher achievers were praised only for exceptionally well-performed tasks. This was not the finding with the five other teachers, from whom praise was infrequent. (Author/AA)

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SECOND GRADE READING INSTRUCTION : THE TEACHER - CHILD DYADIC INTERACTIONS OF BOYS AND GIRLS OF VARYING ABILITIES

AN ABSTRACT OF A THESIS
SUBMITTED TO THE FACULTY
OF THE GRADUATE SCHOOL OF EDUCATION
OF
RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY
BY
DENALENE TAYLOR
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
MASTER OF EDUCATION

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NEW BRUNSWICK, NEW JERSEY MAY, 1977

CS 003 583

Research has produced little systematic explanation for the superior reading achievement of girls over boys. The multidimensional nature of these sex differences is well documented; however, few investigators have studied specific behaviors or competencies which enhance or detract from reading success.

This study examined how specific skilled and experienced teachers interact with boys and girls of varying abilities during reading instruction, to determine some of the components involved in the teaching of boys and girls to read. An observational coding system was developed which focused on two verbal dyadic constellations of behaviors, (1) Reading-Oriented and (2) Classroom Behavior-Oriented interactions. The teacher-child interactions of two experienced teachers (A and B), who were acknowledged for their success in teaching reading, were studied intensively (the extended study), and the results were compared with the findings of a survey of the dyadic interactions of five randomly chosen second grade teachers.

Questions were formulated which addressed (1) the amount of time spent by the teachers in Reading-Oriented and Behavior-Oriented dyadic interactions with boys and girls, (2) the amount of Reading and Behavior-Oriented dyadic criticism received by boys and girls,

(3) the relationship between Reading and Behavior-Oriented dyadic interactions and the reading achievement of individual boys and girls, and (4) the possibility that dyadic interactional patterns could be isolated which distinguished between individual boys and girls of varying ability levels.

In the extended study, the Mann Whitney U Test was used to determine whether differences existed between boys and girls in the major and sub-categories of the code. No significant differences were established in the major categories. In the sub-categories, Reading-Oriented Praise, Instruction, and Criticism, and Behavior-Oriented Praise and Criticism no significant differences were established except for Behavior-Oriented Criticism. It was found that the boys taught by Teacher A received significantly more criticism than the girls. Inspection of the data coded for the two boys who received the most criticism indicated that in each case most of the criticism occurred on a single day.

The Spearman Rank Correlation Test was used to determine whether the Reading-Oriented and Behavior-Oriented dyadic interactions were a function of the reading achievement of individual children. There was an observed trend towards high achieving boys and girls having shorter and less frequent interactions than low achieving boys and girls in the sub-categories Reading-Oriented Praise & Instruction.

Dyadic interactional patterns were isolated for both teachers which distinguished between children of high and low reading ability. Patterns which distinguished between boys and girls were less easy to recognize.

A comparative analysis between the dyadic interactions of the extended study and the survey teachers provided persuasive evidence that the two teachers noted for their skill and experience in the teaching of reading were more sensitive to the needs of the individual child. Patterns which distinguished between children were less evident in the dyadic interactions of the survey teachers. Feedback to individual children was often missing and the sub-category Reading-Praise was particularly revealing. In the extended study, Praise was highly correlated with the reading achievement of both boys and girls. Low achieving children received frequent praise whilst high achieving children were praised for exceptionally well executed tasks rather than for every easily completed assignment. This was not the finding of the survey observations, where praise was generally an infrequent feature of the teacher-child interactions.

The sensitivity of the extended study teachers to the individual differences of the children was reflected in their dyadic interactions, and provided both boys and girls with the opportunity of successfully learning to read.

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To my family, teachers, and friends, for their encouragement, patience, and support, my sincere thanks.

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CHAPTER I

INTRODUCTION

> Our schools as at present constituted are far better fitted to the needs of the girls than they are to those of the boys (p. 7).

This timeless comment by Ayres (1909) is a fitting introduction to an area of research which is as complex as it is perplexing. The multidimensional nature of the sex differences in reading achievement allows no systematic explanation; the spectrum of contributing factors encompasses the physiological differences in the maturation of boys and girls, the effects of culture and environment, the paucity of male teachers, and the maladjustment between boys and their teachers.

The early survey investigation conducted by Ayres started an avalanche of research into the disparities between the reading achievement of boys and girls. Survey investigations were favored by many researchers (St. John, 1932; Wilson, 1939; Alden, Sullivan and Durrell, 1941; Stroud and Lindquist, 1942; Carroll, 1948; Anderson, Hughes and Dixon, 1956; Anderson, Hughes and Dixon, 1957; Gates, 1961; Balow, 1963). In the mid-Sixties and early Seventies survey investigations were largely abandoned, researchers preferring to concentrate on indepth analysis of methodologies (Hahn, 1966; Schneyer, 1966), materials (Zimet, 1972), and teacher-child relationships (Davis and Slobodian, 1967; Wright and Nuthall, 1970; Veldman and Brophy, 1974). Interactional analysis gained recognition and was soon to replace the early survey approach as the "most popular" research technique.

Initially, interactional analysis concentrated on the interactions between the teacher and children en masse (Flanders, 1966). The evolution of the early systems led to the development of teacher-child dyadic systems (Brophy and Good, 1970), and research into interclass differences was succeeded by intraclass analysis. Dyadic analyses have been conducted to determine whether differential treatment of boys and girls contributes to the existing achievement disparities (Good, 1970; Alpert and Hummel-Ross, 1975). Interactional paradigms have centered on the frequency of instructional contacts, praise and criticism (Brophy and Good, 1970; Alpert and Hummel-Ross, 1975; Felsenthal, 1970; Firestone and Brody, 1975). The research findings have indicated that boys receive more praise and criticism, and that in addition, there is differential treatment according to achievement. Good and Brophy (1971a) stated that:

> Boys in the low group received teacher criticism in 33 percent of their dyadic contacts with the teacher. The corresponding figure for the high boys is 13 percent, for the low girls 16 percent and for the high girls 8 percent (p. 250).

Whilst many researchers have conducted naturalistic investigations in schools, others have focussed on cross-cultural studies (Johnson, 1974 and 1976), and sex bias in reading materials (Zimet, 1976). Several reviews have been published which present a variety of causational theories (Dwyer, 1973; Thompson, 1975). Researchers and reviewers have suggested a number of strategies which could lead to the greater success of boys learning to read. Tanyzer and Alpert (1966) advocated delaying the reading instruction of boys; Lyles (1966) recommended grouping by sex; and Flaherty and Anderson (1966) recommended the provision of materials which would be uniquely suited to the learning styles of boys.

The Problem

The Context of the Problem

Independent of the empirical or theoretical nature of the research into the superior reading achievement of girls over boys, a universal characteristic has been the search for disabling conditions which adversely affect boys learning to read, and the advocacy of ameliorating environmental transformations. Whilst acknowledging the multiplicity of causation theories, few investigators have studied the specific teacher behaviors or competencies which enhance or detract from reading success. In contrast, interactional analysis research has been characterized by the identification of the general components of teacher-child interactions of high and low achieving boys and girls; and such research rarely considers the multiple causation theories for the sex differences in reading achievement. Research is lacking which examines teacher-child interactions in light of the abundant research into the differential reading achievement of boys and girls. We still do not know how the teacher teaches individual children to read. Such differentiation is treated globally in the research and the atomistic components of the teaching-learning process remain relatively unknown.

Statement of the Problem

The purpose of this study was to examine how specific skilled and experienced teachers interact with boys and girls of varying ability levels during reading instruction. Two verbal dyadic constellations, Reading-Oriented and

Behavior-Oriented interactions, were studied to determine some of the components of the teaching-learning process involved in the teaching of boys and girls to read.

The Questions

The following questions were formulated:

1. Would disparities be found in the proportion of the teachers' time spent with boys and girls in Reading-Oriented and Behavior-Oriented teacher-child dyadic interactions?
2. Would disparities be found between the amounts of Reading-Oriented and Behavior-Oriented dyadic criticism received by individual boys and girls?
3. Would the distribution of Reading-Oriented and Behavior-Oriented dyadic interactions be a function of the reading achievement of individual boys and girls?
4. Would patterns of teacher-child dyadic interactions be evidenced which distinguished between individual boys and girls of varying levels of reading achievement?

Definition of Terms

Reading-Oriented Dyadic Interaction.-- A Reading-Oriented Dyadic Interaction was defined as any interaction between the teacher and an individual child which was directed towards the child's reading behavior.

Dyadic Contact of Reading Praise.-- A Dyadic Contact of Reading Praise was defined as an evaluative response from the teacher indicating approval of an individual child's reading behavior.

Dyadic Contact of Reading Instruction.-- A Dyadic Contact of Reading Instruction was defined as either 1) a teacher initiated response in which the teacher provided an individual child with new process or product related information, or 2) a child initiated response in which the child indicated to the teacher that s/he required new information concerning a reading activity or assignment.

Dyadic Contact of Reading Criticism.-- A Dyadic Contact of Reading Criticism was defined as an evaluative response from the teacher indicating disapproval of an individual child's reading behavior.

Behavior-Oriented Dyadic Interaction.-- A Behavior-Oriented Dyadic Interaction was defined as any interaction between the teacher and an individual child which was directed towards the child's classroom behavior.

Dyadic Contact of Behavioral Praise.-- A Dyadic Contact of Behavioral Praise was defined as an an evaluative response from the teacher indicating approval of an individual child's classroom behavior.

Dyadic Contact of Behavioral Criticism.-- A Dyadic Contact of Behavioral Criticism was defined as an evaluative response from the teacher indicating disapproval of an individual child's classroom behavior.

A Duration Measure of Dyadic Interaction.-- A Duration Measure of a Dyadic Interaction was defined as any period of time that the teacher spent exclusively with one child in a Reading-Oriented or Behavior-Oriented Dyadic Interaction.

Dyadic Phase.-- A Dyadic Phase was defined as the incidence of a single dyadic contact during a dyadic interaction. It was the smallest coded unit, with multiple phases occuring in a single category constituting a dyadic event.

Dyadic Event.-- A Dyadic Event was defined as the incidence of one or more dyadic phases in a single category during a dyadic interaction.

The Importance of the Study

Intensive studies of skillful teachers which examine the characteristics of teacher-child dyadic interactions during reading instruction would enable the reading researcher to identify some of the key variables affecting the success of boys and girls learning to read. The present study focused upon the Reading-Oriented and Behavior-Oriented dyadic interactions of specific teachers who were recognized for their success in teaching boys and girls to read. The study represents a step towards the identification of some of the unknown components of the teaching-learning process which either enhance or detract from the reading success of individual boys and girls.

The Limitations of the Study

This study focused upon the dyadic interactions of specific teachers, and the inferences and conclusions that can be drawn from the data analysis are limited by this factor. In addition, no causation of reading success or failure can be implied.

The Reading-Oriented and Behavior-Oriented dyadic interactions recorded during the observational periods represent only two of the constellations of events occuring during reading instruction. Procedural and conversational dyadic interactions were not recorded. Finally, the effect of the presence of the observer remains indeterminable.

Overview of the Study

The research reviewed in Chapter II provides persuasive evidence that teacher-child dyadic interactions are central to the reading success of individual boys and girls. Although researchers have investigated the effect of increasing the "good behaviors" of teachers (Alpert, 1976), research is lacking which investigates the teacher-child dyadic interactions of skilled and experienced teachers who are recognized for their successful teaching of reading. The present study focused on the Reading-Oriented and Behavior-Oriented dyadic interactions of such teachers, and the analysis of the data was considered in the light of the research into the sex differences in reading achievement.

To complement the intensive extended study a survey was made of teacher-child dyadic interactions in five second grade classrooms. A single reading lesson was observed in each classroom. The information gained from this study formed an effective backdrop to the major interactional analysis.

Data was collected by means of a dyadic observational code specifically designed to meet the needs of this investigation. Chapter III contains a detailed description of the code and the recording conventions. The customary instructional procedures were not manipulated in any way; and to minimize the effect of the observers (Caplan, 1973), no interactions took place between the observers and the children. The results of the investigation are presented and analyzed in Chapter IV. A summary of the findings, the conclusions, and the recommendations are reported in Chapter V.

CHAPTER II

REVIEW OF THE RELATED RESEARCH

The interest of researchers in the superior reading achievement of girls over boys has waxed and waned, but has produced little systematic explanation of the multidimensional nature of the differences. This chapter will analyze the extent of the differential reading achievement and will examine the major theories of causation. Emphasis will be placed on the importance of the dyadic interactions between the teacher and individual children during early reading instruction; and consideration will be given to the unknown effect of the amount of time that the teacher spends in dyadic contact with individual pupils.

Differential Achievement of Boys and Girls

The superior reading achievement of girls has been reported periodically since the early thirties. Stroud and Lindquist (1940) reported on a longitudinal study in which girls were consistently superior readers. They found that in reading and language usage boys and girls maintained the same relative positions throughout the elementary and high schools. Gates (1961) in his analysis of the Gates Reading Survey Tests, administered to 6,646 boys and 6,468 girls in grades 2 through 8 concurred with the findings of Stroud and Lindquist, and also emphasized the greater variability of the reading abilities of the boys. The significantly higher rates of reading retardation of boys were reported by Alden (1941). Further evidence is provided by the study of records of 142 boys and 175 girls attending the University Elementary School at the University of Michigan (Anderson, Hughes and Dixon, 1956). It was found that 52 percent of the girls learned to read at an age equivalent to that of first grade students as compared with 33.8 percent of boys, and that, as these figures imply, more boys learned to read in second grade than in first grade. In a further study Anderson, Hughes and Dixon (1957) found that the sex differences in learning to read were not evident in children with high I.Q.'s. Sex differences were found in children of average and low ability.

Studies of readiness and achievement.-- Carroll (1948), in an analysis of a number of readiness tests administered to varying numbers of children demonstrated that statistically significant sex differences were evidenced during the period of reading readiness.

Sex differences in readiness and achievement were also found by Samuels (1943) who reported the reading achievement superiority of girls in a group of paired boys and girls, each pair having the same mental age, I.Q., and chronological age - plus or minus three months. Based on a study of the Metropolitan Readiness Test results of 7,821 boys and 7.138 girls, Prescott (1955) reported that the performance of the girls was superior to that of the boys. Balow (1963) also found significant differences between the sexes in readiness test scores. However, when readiness was held constant, the sex differences in achievement disappeared.

Spache et al (1966) reporting on a longitudinal first grade reading readiness program offer further evidence of achievement differences favoring girls. In this experiment the variable of race, sex, and age were interrelated to form experimental and control groups. The researchers state that the greatest achievement was made by girls. They were favored at every level of the white control population and at the lower levels of the experimental population.

Konski (1951) conducted a study to determine the extent of the differential readiness and subsequent achievement of boys and girls. The author reported that the differences between boys and girls of selected reading readiness areas were not statistically significant. However, at the end of first grade statistical differences were found which favored girls in the area of paragraph reading. In the areas of Word Pictures and Word Recognition girls were once again superior with the findings closely approaching statistical significance. The results of an investigation conducted by Wilson et al (1939) are similar to those of Konski, Wilson, in an analysis of data derived from a series of mental, reading and letter tests given to 400 children in a period between 1933 and 1936, reported no statistically significant differences in reading readiness. The author offers further evidence which supports a gradual differentiation in reading achievement which favors girls over boys. The results of an investigation conducted by Felsethall (1970) are in agreement with those of Konski and Wilson. Nonsignificant sex differences were found in reading readiness, but once again the superior reading achievement of girls over boys was evidenced at the end of first grade.

Despite the differences in the methodologies of these investigations, they offer persuasive evidence that there exists a consistent pattern of superior reading achievement for girls over boys.

Suggested Causes of Sex Differences

Maturational Differences

The maturational differences between girls and boys have frequently been suggested as one explanation for the superior reading achievement of girls (Carroll, 1948; Anderson, Hughes, and Dixon, 1957; and Gates, 1961).

Maccoby and Jacklin (1974) emphasize that "the greater vulnerability of the male child to anomalies of prenatal development, birth injury, and childhood disease is well known (p. 114)." These researchers suggest that this is a causal factor of boys' very low scores on tests of mental abilities. The Collaborative Study of Cerebral Palsy (Singer, Westphal and Niswander, 1968) analyzed the data available on 15,000 patients in the first year of life and a smaller number of patients between 3 and 4 years of age. Physical, psychological and neurological sex differences, in favor of the girls, were found on all scales. Literature reviewed by Singer (1968) and by Bentzen (1963) indicates that more males are conceived than females, but the number of live male births is decreased by the higher incidence of natural abortion and still born rates for males; at the neonatal phase males have a higher mortality rate; and that boys are more susceptible to disease at an early age than girls. More boys than girls are stutterers and show articulatory errors in the primary years; more boys than girls suffer from blindness and limited vision, deafness and hearing loss, and other physical handicaps. In an analysis of the behavior of a group of nonpsychiatric children, Lapouse and Monk (1964) found that more boys than girls manifested behavior that deviated from the norms, with the greatest differences occuring in the areas of temper loss, overactivity and teacher's complaints about behavior.

The impact that physical immaturity may have on the reading endeavors of young boys is emphasized by Wilson et al (1949),

> Less physiologically mature boys would tend to give less constant attention, would be impelled to distracting and interrupting large muscle behavior, and thus would make both slower and less accurate progress under usual reading situations (p. 582).

The strong link between the physiological differences and cultural patterns is emphasized by Bentzen (1963) who speaks of "a continuous process of interaction between the biological integrity of a given organism and the impact on that organism of culturally determined expectations (p. 98)." The cultural component of this interaction is examined in the following section.

Cultural Differences

Bentzen (1963) offers the view that, society, by only covertly recognizing maturational differences between boys and girls and the higher incidence of learning and behavior disorders of boys, increase the possibility of deviant behavior. The deviant behavior of boys has become accepted by society as "normal".

The pressures of the male sex role are considered by Dwyer (1973) to be incompatible with the counter pressures of schooling. She speaks of teaching boys to read as placing them in "a situation of conflicting demands (p. 462)." Minuchin (1966) found that the cultural pressures may be lessened in more modern schools where they found boys and girls to be less "sex-typed" than their counterparts attending more traditional schools.

Evidence concerning the effect of socio-economic status are presented by Mortenson (1968). He analyzed 1,500 first grade children and found statistically significant interactions between socio-economic status and sex for the visual and auditory discrimination tasks; children of lower socio-economic status being less advanced than middle and upper socio-economic status; girls achieving higher scores than boys.

Thompson (1975) adds another hypothesis which should be considered. He states that boys may receive less exposure to the printed word before entering school, suggesting that if this is true, then it would explain the greater difficulties experienced by some boys during the initial phases of reading instruction.

The effect of cultural influences is demonstrated by Johnson (1974) in a cross-cultural study of boys and girls in four English speaking nations. Based on the findings of this investigation the author emphasizes that the sex differences in reading achievement observed in the United States may be a cultural phenomenon.

Methods and Materials

The ambiguity of much of the available information concerning the differential reading levels of boys and girls is emphasized by the conflicting reports of the effects of various methods of reading instruction. Differential achievement favoring girls was reported by Hahn (1966) following an investigation into three approaches to initial reading instruction; these were ITA, language arts and basal reader systems. Wyatt (1966) conducted an investigation in which methods and materials were varied in an attempt to increase the reading achievement of first grade boys. The girls in this study remained the superior readers, and the results suggested to Wyatt that the achievement lag of boys was dependent upon factors other than teaching methods and materials.

Manning (1966) investigated three methods of instruction, described by the author as "levels-designed, visual-auditory and related writing methods (p. 611)." No significant differences were found in the reading achievement of boys and girls. Similarly, no significant differences were reported by Sheldon et al (1966) in a study of three instructional methods, basal readers, modified linguistic materials and linguistic readers.

Criscuolo (1968) suggested that the content of basal readers may be more appealing to girls than to boys. A similar viewpoint was expressed by Heilman (1972) who suggested that initial basal readers may be "considerably less challenging to boys than to girls (p. 39)."

In the summary of the second-grade phase of the Cooperative Research Program in Primary Reading Instruction, Dykstra (1968) emphasized that future research should be directed towards teachers and learning situations rather than methods and materials per se.

Interaction Between Boys and their Teachers

The final causation theory of the differential reading achievement of boys and girls which will be presented in this chapter is the possible negative effects that female teachers have on the reading achievement of boy pupils. It was St John (1932) who first reported the disparities between teachers' marks and the results of standardized tests. He found that the correlation was greater for girls than for boys, and that boys lagged 7 percent behind girls in grade progress although differences were not found in average intelligence. In addition St John correlated marks for 'effort' and marks for 'conduct' with achievement in various academic endeavors. Both were found to be of importance. Marks for effort obtained by the boys correlated more highly with achievement than did I.Q. Therefore St John emphasized the importance of personality and behavioral characteristics in the achievement ratings given by the teacher.

Cardan (1968) criticized the feminine school setting which he feels causes conflict for the boy pupils and that it impairs their academic progress. He expressed the opinion that the ratio of girls and boys reading retardation demonstrates that teachers are more nurturant of girls. Manning is in agreement with this viewpoint and blames the superior reading skills of girls on the "inferior teaching service to boys (p. 616)."

Grambs and Waetjen (1966) reason that one of the causes of maladjustment is the conformity demanded by the female teachers. These researchers express the view that boys may be unable or unwilling to learn in the manner female teachers prescribe.

Considerable concern has been shown by many educators for the lack of male teachers in the elementary schools. In a study into the effects of the sex of the teacher on fifth grade student reading achievement Asher and Gottman (1973) found that whether boys and girls were taught by male or female teachers did not affect their reading performance. Brandt, Hayden and Brophy (1975), based on an investigation into teachers' attitudes toward students and the assignment of responsibility, support the view that the sex of the teacher is "relatively unimportant (p. 682)." This viewpoint is expressed despite the fact that some differences were evidenced; for example, male teachers were found to rate student skill higher than female teachers.

In a report on the effective practice of grouping by sex Lyles (1966) lists the teachers' reactions to this grouping procedure. Most of the comments clearly indicate that the teachers, once sensitized, react positively to the differing needs of the boys.

The much quoted investigation conducted by McNeil (1964) offers further evidence of the possible negative effect that female teachers have on the academic progress of their boy pupils. He exposed a group of kindergarten children to two instructional treatments. The first treatment was an auto-instructional program conducted with no intervening adult and the second treatment was an instructional program administered by a female teacher. Significantly higher reading scores were reported for the boys than for the girls after the period of auto-instruction. The scores obtained by the boys following the period of classroom instruction with a female teacher contrasted sharply with those obtained during the auto phase of instruction. McNeil believed that, as the superiority of the boys was not maintained when reading instruction was teacher directed, the classroom must contain variables which were unconducive to boys' learning.

One aspect of this study which was not fully discussed by McNeil or by subsequent researchers was the differential time factor. The duration of the auto-instructional period was slightly over three weeks as compared with the four months of classroom instruction by female teachers. Since research indicates that this is a period of rapid maturation for both kindergarten boys and girls, this could most certainly be a mediating variable affecting the achievement levels resulting from the two treatments.

The second phase of the McNeil investigation was based on the answers to questions which were presented to individual pupils. Children were asked such questions as "Pretend you are sitting in your reading group. Who is the teacher talking to when she says 'Sit up and pay attention'? (p. 117)." It was found that boys received more negative comments and less opportunities to read.

Dwyer (1973) strongly criticizes the conclusions of the McNeil study. She gives two possible explanations for the differential achievement favoring boys during auto-instruction. She states that it may have had differential meaning for boys and girls, and suggests that for girls it may have had a 'novelty' effect whilst for boys the effect may have been based on their mechanical interest. Secondly, during this period boys experienced less conflict between school expectations and the development of their masculine identity. It should also be noted that in the design of his investigation McNeil did not include questions pertaining to positive classroom interactions. It is quite possible that boys would also receive significantly more praise or instructional aid in addition to the negative comments.

Wilson et al (1939) expressed the view that some boys tend to be less responsive to the teacher because of their physiological immaturity, and that teacher guidance during reading instruction would be less effective. A similar viewpoint is offered by Liss (1966) who believes that the classroom procedures may not be entirely the work of the teacher.

Student personality and temperament.-- Possible explanations for the negative interactions between boys and girls are considered by Sears and Feldman (1966). These authors suggest that one of the reasons for this phenomenon is that boys are more aggressive than girls, and they suggest that teachers may respond with counter aggression.

Some indication of the factors which may affect the teachers and children during reading instruction can be gleaned from the study conducted by Willis and Brophy (1974). These researchers categorized students into four possible groups, (1) attachment, (2) concern, (3) indifference and (4) rejection. (These classifications were developed by Silberman, 1969). Codings were developed from the taped interviews with 28 female first grade teachers. It was found that more girls than boys were placed in the attachment group (11.2 percent girls - 9.7 percent boys); more boys than girls in the concern group (12.7 percent - 7.7 percent); more boys than girls in the indifference group (9.1 percent - 8.0 percent); and finally, more boys than girls in the rejection group (11.2 percent - 8.7 percent). The qualities described by the teachers differed slightly according to the sex of the pupil. The authors state that teachers often made comments concerning the low reading ability and the immaturity of the boys in the attachment group. These were not qualities noted in the girls in this category. Boys in the concern group, whilst described as active and vivacious, were also noted for their immaturity and dependence upon the teacher. Girls in this group were similarly described as immature but also as quiet and lacking self-confidence. Both boys and girls in this group were cooperative and had positive attitudes towards school. Boys in the indifference group, although they did not appear to have less ability, as measured by the Metropolitan Readiness Test, were perceived as receiving more negative comments about their work-related behavior, and more total negative comments.

Intra-sex differences were as great as inter-sex differences. Willis and Brophy emphasize the teachers differing response to the boys of the concern group when compared with the response to those boys placed in the attachment group. They conclude that one of the primary reasons for these differences is that the 'concern boys' appeared to be dependent upon the teacher, whereas the 'indifference boys' were not dependent and their behavior was non-rewarding to the teachers. The boys in the rejection group were described as "immature and poorly adjusted, as independent, as loud or disruptive ... as generally lacking in school readiness, as presenting problems in their behavior during work assignments, and as being of generally low ability (pp. 526-527)." Girls were perceived in a similar manner, the only major difference being their passive non-conforming behavior rather than the active non-conforming behavior of their boy counterparts. It was noted that neither the boys nor the girls in the rejection group differed significantly from their classmates on the Metropolitan Readiness Test scores but that these children were described as more likely to fail academically. The authors believe that the 'indifference' students by responding negatively gradually received less of the teachers' attention, even though the teachers in this study recognized that extra help was needed.

Caplan's (1973) examination of two constructs, (1) the need for social approval, and (2) the need for achievement, provides a further insight into the complex interactions of the teacher and the child. In an experiment to determine reactions to failure, Caplan found that girls shifted from failure to achieve academically to social approval in a more "uniform manner" than boys. This is one explanation which could account for the higher number of boys in the indifference and rejection groups and the lower number of boys in the attachment groups of the Willis and Brophy investigation.

Equal opportunities for boys and girls learning to read.-- Many researchers have emphasized the need for teachers to provide equal opportunities for boys and girls learning to read, and yet recommendations are usually general in nature, lacking the degree of specificity necessary if they are to prove effective. Teachers, exposed to an intensive in-service program on the teachers' classroom behavior and the effects on reading achievement (Heilman, 1966), noted that one of the major changes was an awareness of the differing needs of boys and girls learning to read.

The Teacher-Child Dyad

The research reviewed in the previous section of this chapter emphasizes the importance of teacher-child interactions to the subsequent reading achievement of boys and girls. Brophy and Good (1970) stress the need to move from observations of classes of children to observations of individual children, the child and the teacher forming the ultimate unit of analysis. Good and Brophy (1971) question the validity of the major underlying assumptions of inter-class analysis:

> 1. the idea that the interaction variables being studied are properly conceptualized as interactions between the teacher and the class as a group rather than as a dyadic interaction between the teacher and a single student, and
> 2. the idea that teachers are consistent across students in their classroom behavior so that individual differences within the classroom are of little or no importance relative to inter-class differences (pp. 36-37).

Behavior modification researchers have utilized the dyadic interactions of individual pupils with their teachers to consciously manipulate student classroom behaviors (Hall, Lund and Jackson, 1968; Broden, Bruce, Mitchell, Carter and Hall, 1970). Studies have also been made to determine the effects of teacher expectations on the achievement of individual pupils (Brophy and Good 1970). Cherry (1975) focused on the dyadic interaction of the preschool child. However, few studies have focused on the teacher-pupil dyad during reading instruction. The few studies which are available are worthy of analysis.

In the investigation of Good and Brophy (1970) to identify differential teacher behaviors it was the boys who produced the most correct answers and had the most interaction with the teacher; however they also received the most criticism. Felsenthal (1970) reached similar conclusions based on the analysis of the observation of teacher-pupil interactions in twenty classrooms with a total of 439 children (220 girls and 219 boys). She states, "teachers chose to call on and accept the ideas and feelings of boys more frequently than they did with girls." However, the author also reports that boys were rejected, ignored and criticized more frequently than girls.

Good and Brophy (1971a) suggested that the teacher's critical comments appear to be directed towards individual boy's behavior rather than to academic activities, and suggest that a possible explanation is the more frequent disruptive behavior of boys rather than any teacher set or bias. The findings of a study by Davis and Slobodian (1967) suggest similar conclusions to those reached by Good and Brophy. In addition, they also found that boys and girls received equal opportunities to read or respond during reading activities.

Firestone and Brody (1975) hypothesized that the quality of teacher-pupil interaction influences academic performance. Observations were made of forty-four girls and thirty-five boys during their kindergarten year. A significant finding of this investigation was that negative interactions during the kindergarten year were associated with poor performance by children on the MAT in the first grade. Firestone and Brody emphasize that since I.Q. was controlled, the possibility could be discounted that the low achievement was due solely to low I.Q. children receiving negative interactions.

Alpert and Hummel-Ross (1975) used tape recordings and an author-devised observation instrument to determine whether there were any differences in the quality of response opportunities of third grade boys and girls or in teacher feed back to boys and girls during reading and arithmetic instruction. Alpert and Hummel-Ross conclude that for these two behaviors the boys and girls were treated similarly.

Teacher Time

There is a paucity of studies which have considered the importance of the amount of time teachers spend with individual pupils during reading instruction. Those studies using the Brophy-Good Teacher-Child Dyadic Interaction System have quantified the frequency of dyadic interactions, however, duration measures are not taken. Frequency measures of teacher-pupil interactions may indicate similar teacher contacts for many pupils but in terms of seconds or minutes of "teacher-time" the measures may be very different.

A few studies have considered the effect of reading instructional time. In a study by Alpert (1976) it was found that the amount of time the low reading group spent in reading instruction did not affect their subsequent reading achievement. This study contrasts with the investigation conducted by Harris and Serwer (1966). These researchers found that the amount of time spent in reading activities was a crucial variable on the subsequent reading achievement of children learning to read, and that the teacher's use of time was the most significant factor.

One group of researchers (Quirk, Trismen, Weinberg and Nalin, 1976) have been investigating the allocation of student and teacher time during reading instruction. They focused their attention on elementary compensatory reading classes, studying which skills were emphasized by students and the amount of time each student spent attending to reading. For the purpose of this study a comparison was made between categories of teacher time and student time. For the category, comprehension, students and teachers spent 7.48 percent and 11.93 percent of their time, respectively. This would suggest that for 4.45 percent of the time the teacher is involved in individual or small group instruction. Similarly the student spent 19.57 percent of the time on pronunciation and word recognition activities as compared with the 26.15 percent of the teacher's time, suggesting that 6.58 percent of the time is spent by the teacher in individual or small group activities. However, how the teachers utilized this time is unknown.

Conclusions

Research has clearly established that most girls enter the world of literacy with less trauma than boys. The vulnerability of boys to prenatal, perinatal, and postnatal difficulties and childhood disease (Maccoby and Jaklin, 1975), and the physiological immaturity of some boys (Wilson, 1939), are intricately woven with the cultural patterns (Liss, 1966), the acceptance by society of boys' deviant behavior (Bentzen, 1963), and such factors as personality and temperament (Firestone and Brody, 1975). The complexity of the inter-related explanations for the observed difficulties militates not only against boys, but also against their teachers. It is the teacher who must overcome the reading problems of the children s/he teaches and yet there is a paucity of research which speaks to intricate systems of communication between the teacher and the child during reading instruction.

CHAPTER III

METHODOLOGY

The research studies reviewed in Chapter II address the importance of teacher-child interactions during reading instruction, and the need for intensive studies of how given teachers interact with individual children. Acknowledging the extensive research into the superior reading achievement of girls over boys, the present study focused upon how specific skilled and experienced teachers interact with boys and girls of varying ability levels during reading instruction.

A survey was also conducted of teacher-child dyadic interactions of randomly chosen second grade teachers. The data resulting from this survey were then analyzed to maximize the information obtained from the extended study. All the observations were made of the classical situation of female teachers teaching elementary school children to read.

The Population and Its Setting

The Population

The extended study.-- During the extended study period, observations were made of 26 second grade children and 2 teachers. Of the 26 children observed, 4 boys and 7 girls were learning to read with Teacher A and 8 boys and 7 girls were learning to read with Teacher B. The resulting 1,383 teacher-child interactions formed the basis of an indepth dyadic interactional analysis.

Many of the children had professional parents, although the socioeconomic range was from upper middle class to the economically and socially disadvantaged. All the children had attended kindergarten and many had nursery school experience.

The two teachers involved in the investigation were described by their principal as enthusiastic and innovative. Teacher A had 16 years teaching experience and had recently obtained a M.Ed in Elementary Education. Teacher B had 16.5 years experience and had embarked on research of her own, resulting in extensive lecturing throughout the State of New Jersey on an individualized developmental spelling program which she had devised.

The survey.-- Inner city, low and middle class urban, and middle class suburban second grade school children and their teachers formed the survey sample. Observations were made in 5 schools of 5 teachers and 96 children, 47 boys and 49 girls. The teachers were selected at random to represent typical second grade teachers.

Social and Physical Environment

The extended study.-- The children observed during the extended observation period attended a progressive elementary school in a well established urban neighborhood. The principal welcomed student teachers and research was encouraged.

The spacious classrooms were adequately lit with colorful displays of the childrens' endeavors featured on all the walls. Tables were grouped together and seating arrangements were established for reading instruction. Activities were displayed along several of the walls and these were utilized as children completed their reading assignments.

The survey.-- The survey schools represented a cross section of educational environments. Teacher-child dyadic interactions were coded in one of the second grade classrooms in a total of 5 schools selected from inner-city, urban and suburban school districts.

The 5 teachers were chosen by their respective principals.

The physical setting of each school was dependent upon its urban or suburban location, however, all the classrooms were spacious and adequately lit. In each classroom the tables were grouped for instruction.

Approaches to Reading

The extended study.-- The teachers observed during the extended observation period utilized several basal reading systems and supplementary materials gathered from a variety of sources. Slightly different organizational strategies for reading instruction were observed in each classroom.

Teacher A devoted a full two hours to reading instruction each day. A brief introduction to the day's reading activities was presented at the beginning of each reading period. Explicit directions were given to each of the three groups of children, and their questions related to the assignments encouraged. Once the children were working satisfactorily the teacher spent her time working with the three groups of children. Group instruction continued until the completion of the reading period.

Teacher B devoted the first twenty minutes of the two hour period to an English lesson, during this time

English structures were considered or poetry read. On one occasion the children were involved in dramatic improvisations. This period was followed by an introduction to the day's reading activities, and once again questions were encouraged. The teacher then divided her time between the three groups of children with the final ten minutes of the period being devoted to the teacher reading a story to the entire class.

The survey.-- Each of the survey teachers (referred to throughout this study as Survey Teachers 1, 2, 3, 4, and 5) utilized several basal reading schemes and supplementary materials. Excluding Survey Teacher 5, all of the teachers reviewed completed workbook activities and previewed the forthcoming group assignments. Following this brief introductory period each teacher focused her attention on group reading instruction. Aides were present in the classrooms of Survey Teachers 1 and 3. During the observation period both aides worked with small groups and individual children. Group instruction continued in each of these four classrooms until the completion of the reading lesson. The children taught by Survey Teacher 5 worked independently for the first 45 minutes of the observation period. During this time the teacher worked with any child who requested her assistance. The remainder of the observed lesson was spent in group instruction.

Conditions of the Study

Selection and Administration of Tests

The extended study. The Gates MacGinitie Reading Tests were administered to determine the reading achievement of the children observed during the extended observational period. This battery consists of a series of vocabulary and comprehension tests designed to be used with grades 1-12. These well known tests were considered highly suited to the requirements of the study.

The tests were administered by the researcher after the completion of the observational period. The directions accompanying the tests were explicitly followed and the organizational procedures were held constant throughout the several administrations. The range of reading ability required the administration of three levels of the battery (Primary A, B, and C). Of the children taught by Teacher A, 2 boys and 2 girls obtained maximum scores on the Primary B test, and were subsequently retested together with 6 boys and 6 girls taught by Teacher B. Tables 1 and 2 show the distribution of reading achievement for the children taught by Teacher A and Teacher B. The wide range of achievement registered for the boys and girls in both

TABLE 1

THE READING ACHIEVEMENT OF BOYS AND GIRLS TAUGHT BY TEACHER A

	Gates MacGinitie Reading Tests		
	Vocabulary	Comprehension	Mean
Boys	4.9	5.1	5.0
	5.1	4.6	4.85
	2.3	2.1	2.2
	2.1	2.1	2.1
Girls	5.9	5.6	5.75
	4.9	5.2	5.05
	3.1	3.7	3.4
	3.5	3.4	3.45
	3.2	2.4	2.8
	3.2	2.3	2.75
	1.8	1.6	1.7

TABLE 2

THE READING ACHIEVEMENT OF BOYS AND GIRLS TAUGHT BY TEACHER B

	Gates MacGinitie Reading Tests		
	Vocabulary	Comprehension	Mean
Boys	6.8	5.8	6.3
	6.1	5.4	5.75
	5.2	4.9	5.05
	4.6	5.0	4.8
	4.8	4.9	4.85
	3.9	3.1	3.5
	2.4	1.9	2.15
	1.7	2.1	1.9
Girls	6.5	5.4	5.95
	5.5	4.9	5.2
	4.9	4.9	4.9
	4.9	4.6	4.75
	4.3	4.0	4.15
	4.3	4.0	4.15
	1.5	1.4	1.45

classes was highly suited to the purposes of the study.

Discussions with Teachers

The extended study.-- A recent study (Martin and Keller, 1976) provides persuasive evidence that teachers are unaware of the quality of their teacher-child interactions. To minimize the anxiety which could possibly be provoked by the extended observation period, a brief statement was read by each teacher which noted the direction of the study, and outlined the practical implications of the presence of the observer. This statement contained no information concerning the focus on boys and girls interacting with the teacher, the coding categories, the conventions of the coding sheet, nor the possible outcomes of the investigation. At no time during the observational period was approval or disapproval registered by the observers. Neither the individual children nor the teaching techniques and strategies employed by the teachers were discussed.

Following the completion of the observational and testing stages of the study, questions were posed to the teachers which were designed to establish some of the underlying structures on which their reading instruction was founded. These questions centered on (1) boys and girls learning to read, (2) praise and censure of reading and classroom behavior, (3) initial and on going evaluation, (4) grouping procedures and practices, and (5) individual student differences in ability.

The Observation Period

The extended study.-- Ten observation periods were scheduled for the collection of coded data, and the observations in each classroom were made on five consecutive days. This arrangement enabled the coder to observe each of the two teachers on one occasion for each day of the week (Table 3). The first observational period commenced on October 18, 1976. The Monday and Tuesday were utilized as a period of orientation for the coder. This facilitated the learning of the childrens' names, and also served to habituate the children to the presence of the coder. The Wednesday was designated for establishing inter-observer agreement. Once agreement was achieved the observations continued until five days of data collection had been completed. Each observation commenced at the beginning of the reading period and continued until its conclusion. An identical schedule was planned for the second observation period which commenced November 8, 1976. These particular weeks were chosen as they were free from designated holidays or class events.

TABLE 3

THE OBSERVATION SCHEDULE

Teacher:	1		2	
Date:	October 18	25	November 8	15
Monday	Orientation	Observation	Orientation	Observation
Tuesday	Orientation	Observation	Orientation	Observation
Wednesday	Inter-observer agreement	Observation	Inter-observer agreement	Observation
Thursday	Observation		Observation	
Friday	Observation		Observation	

The survey.-- Observational data were collected from 5 second grade classrooms, 5 schools in 3 school districts. Teacher-child dyadic interactions were coded during one complete reading lesson in each of the classrooms.

The Observation System

An observational coding system was developed to suit the requirements of the study. Consideration was given to the thesis of Herbert and Attidge (1975) "A Guide for Developers and Users of Observation Systems and Manuals", and to the Teacher-Child Dyadic Interaction System developed by Brophy and Good (1969). The resulting system focused upon the frequency and duration measures, and upon the sequential codings of Reading-Oriented and Behavior-Oriented teacher-child dyadic interactions. A description of the coding system is presented in the first appendix.

The Observation Code

An observation code was devised which focused upon two major categories. These were Reading-Oriented and Behavior-Oriented dyadic interactions and consisted of five sub-categories, 1) Reading Praise, 2) Reading Instruction, 3) Reading Criticism, 4) Behavioral Praise, and 5) Behavioral Criticism. Operational definitions of the major categories and sub-categories of the code are presented in the subsection Definition of Terms in Chapter I. The coding system proved to be an efficient instrument and no major difficulties were encountered during either the extended study or the survey.

The coding sheet.-- A coding sheet was devised to facilitate the accurate recording of teacher-child dyadic interactions. The design enabled the observer to record whether an interaction was teacher or child initiated, the identity of the child, and the sequential pattern of the multiple phases of the interaction.

The record sheets.-- To facilitate data processing two collation forms were devised. Individual Record Sheet One retained the basic pattern of the Classroom Observation Sheet and was devised for the collation of each child's dyadic interactions with the teacher. The sequential phasing of each interaction, and the sequence of the occurance of interactions were retained. This particular coding form proved invaluable in the isolation of idiosyncratic teacher-child dyadic interactions. Individual Record Sheet Two presented, in a tabulated form, all the available information for each individual child thus facilitating the computational analysis of the data. Examples of the collated data are presented in the second appendix.

Training of Observers

This researcher was the principal observer. A doctoral student of Reading in the Department of Psychological Foundations at Rutgers Graduate School of Education observed on two occasions to establish inter-observer agreement.

The principal observer spent one week observing in a first grade classroom. This period served as an orientation period and also afforded the opportunity for the refinement of the coding procedures.

The second observer spent two training periods to gain familiarity with the coding conventions and categories. The second period included the coding of actual interactions collected.

Inter-Observer Agreement

At the conclusion of the first observational period informal discussions between the first and second observer centered upon (1) the nature of dyadic interactions; and (2) the occasion of dyadic interactions. No conceptual abberations were discovered, and formal analysis of the coded data was therefore pursued. The occurence of events in each sub-category during each dyadic interaction were compared. The inter-observer agreement was calculated by dividing the total number of agreements by the sum of the total number of agreements and disagreements. Inter-observer agreement was established at .86 during the first observation and .88 on the second.

The Control of Observer Bias

To minimize the effects of observer bias on the coded data several steps were taken:

(1) The observers were provided with no information concerning the reading ability of individual children.

(2) During the observational period the observers did not discuss any child with the teachers or with other faculty members.

(3) The collation of the data commenced at the conclusion of the major observational period.

The Collation of the Data

To maximize the information to be derived from the study data collation included counts of each child's Reading-Oriented and Behavior-Oriented interactions, the events taking place during each interaction, and the individual phases of each interaction. The resulting collated data, together with the duration measures of Reading-Oriented and Behavior-Oriented dyadic interactions facilitated the statistical analyses. A detailed description of the statistical analyses is presented in Chapter IV.

CHAPTER IV

RESULTS

Boys and girls Reading-Oriented and Behavior-Oriented teacher-child dyadic interactions were analyzed to address the following questions.

1. Would disparities be found in the proportion of the teachers' time spent with boys and girls in Reading-Oriented and Behavior-Oriented teacher-child dyadic interactions?
2. Would disparities be found between the amounts of Reading-Oriented and Behavior-Oriented dyadic criticism received by individual boys and girls.
3. Would the distribution of Reading-Oriented and Behavior-Oriented dyadic interactions be a function of the reading achievement of individual boys and girls?
4. Would patterns of teacher-child dyadic interactions be evidenced which distinguish between individual boys and girls of varying levels of achievement?

In each instance, separate analyses were made for Teacher A and Teacher B. Several children were absent on one occasion during the observation period. No child was absent on more than one occasion. The data collated for the children who were absent were weighted by a factor of 1.25 (4 days divided by 4 and multiplied by 5) to avoid possible bias in the statistical analysis. Repeated analyses with unweighted scores demonstrated that in no instance was statistical significance or lack of significance affected. However, the weighted scores were retained in order for realistic comparisons to be made between individual children. In each of the tables in which weighted data is included the symbol "a" is placed next to the mean reading achievement scores of the relevant children.

The data collected during the survey was collated, tabulated and presented to allow comparisons with the findings of the major dyadic interactional analysis.

The Extended Study

The Proportion of the Teachers' Time Spent with Boys and Girls in Reading-Oriented and Behavior-Oriented Dyadic Interactions

Treatment of the Data

To establish the proportion of time each teacher spent in dyadic interactions with boys and girls the duration measures of total dyadic interactions, Reading-Oriented interactions and Behavior-Oriented dyadic interactions recorded for boys were compared with the same measures recorded for girls. A more detailed examination of these measures was then undertaken to determine whether statistically significant differences existed in any of the major categories. Separate totals were calculated for each child and the means in each category were examined. The significance of any differences was tested by analyzing the distribution of totals for individual boys and girls. The Mann Whitney U Test was used to establish the significance level of any observed differences.

Results

Teacher A.-- The total observed time in the classroom of Teacher A was 521 minutes, 177.17 minutes (34%) of which were spent in dyadic interactions with individual children. Table 4 presents the proportions of time that the teacher spent interacting with boys and girls. The mean durations of the interactions of boys and girls indicated that more time was spent with the boys than with the girls in both Reading-Oriented and Behavior-Oriented dyadic interactions. However, neither

TABLE 4

THE DURATION OF DYADIC INTERACTIONS-TEACHER A[a]

	Total observed time (minutes)	Duration of dyadic interactions					
		Total		Reading-Oriented		Behavior-Oriented	
		Boys	Girls	Boys	Girls	Boys	Girls
Number of boys and girls	-	4	7	4	7	4	7
Total (minutes)	521	83.32	99.26	77.69	97.2	5.63	2.07
Mean per child (minutes)	-	20.83	14.18	19.42	13.89	1.41	0.29
Mann Whitney U p		.08		.12		.055	

[a] The statistical analysis was conducted using data weighted by a factor of 1.25 for those children who were absent on one occasion.

of these differences were statistically significant.

Teacher B.-- Teacher B was observed during reading instruction for a total of 543 minutes, 259.34 minutes (47.8%) of which were spent interacting with individual children. Table 5 presents the proportions of time that the teacher spent interacting with boys and girls. The mean durations of these measures demonstrates that the teacher spent equal amounts of time in dyadic interactions with boys and girls, and that a slight difference existed in the amount of time spent in Reading-Oriented interactions, slightly more time was spent with the boys than the girls. The differences in the means of boys and girls in the latter two categories were shown not to be statistically significant.

The Amounts of Reading-Oriented and Behavior-Oriented Dyadic Criticism Received by Individual Boys and Girls

Treatment of the Data

To determine the amounts of criticism received by individual boys and girls, the total number of events of Reading Criticism and Behavioral Criticism, and the total duration of Behavioral Criticism were compared to the total events and total durations of all dyadic

TABLE 5

THE DURATION OF DYADIC INTERACTIONS-TEACHER B[a]

	Total observed time (minutes)	Duration of dyadic interactions					
		Total		Reading-Oriented		Behavior-Oriented	
		Boys	Girls	Boys	Girls	Boys	Girls
Number of boys and girls	-	8	7	8	7	8	7
Total (minutes)	543	150.71	122.93	148.37	122.31	2.86	0.61
Mean per child	-	18.84	17.56	18.55	17.47	0.36	0.09
Mann Whitney U p		.43		.48		.22	

[a] The statistical analysis was conducted using data weighted by a factor of 1.25 for those children who were absent on one occasion.

interactions. A detailed analysis was then undertaken to determine whether statistically significant differences existed between the critical contacts of boys and girls. Separate sub-totals of the number of events of Reading Criticism and Behavioral Criticism, and the total duration of Behavioral Criticism were calculated. The means in each category were then examined, and the significance of any differences was tested by analyzing the distribution of totals for individual boys and girls. The Mann Whitney U Test was used to establish the significance level of any observed differences.

Results

Teacher A.-- The data collated for the boys and girls taught by Teacher A are presented in Table 6. Differences were evident in all sub-categories related to criticism with the boys receiving more criticism than the girls. The significance of the difference was established in the sub-category Total Events of Behavioral Criticism at $p < .02$, and, in the sub-category Total Duration of Behavioral Criticism at $p < .01$. The difference in the sub-category Total Events of Reading Criticism was not significant.

A more detailed examination of the data collated for Teacher A is presented in Table 7. Inspection of

TABLE 6

DYADIC CRITICISM OF BOYS AND GIRLS-TEACHER A[a]

	Events				Durations (minutes)	
	Total interactions	Total Reading interactions	Reading criticism	Behavioral criticism	Reading interactions	Behavioral criticism
Boys Total	347	310	15	35	77.69	5.44
Mean (per boy)	86.8	77.5	3.8	8.8	19.4	1.36
Girls Total	537	498	6	28	97.2	1.42
Mean (per girl)	76.7	71.3	0.9	4.0	13.9	0.20
Ratio Boys mean / Girls mean	1.13	1.09	4.22	2.20	1.40	6.80
Mann Whitney U p	.16	.16	.18	.02	.08	.01

[a] The statistical analysis was conducted using data weighted by a factor of 1.25 for those children who were absent on one occasion.

TABLE 7

DYADIC CRITICISM OF INDIVIDUAL BOYS AND GIRLS-TEACHER A

Mean reading achievement	Events					Durations (minutes)		
	Total	Reading criticism		Behavioral criticism		All interactions	Behavioral criticism	
		No.	% of total	No.	% of total	Mins.	Mins.	% of total
Boys								
2.1	98	9	6.3	12	12.2	20.16	2.58	8.6
2.2[a]	91	0	0	9	9.9	16.35	1.0	6.1
4.85	78	1	1.5	5	6.4	20.64	0.19	0.9
5.0	80	5	6.7	9	11.3	16.17	1.67	10.3
Girls								
1.7	116	2	1.7	9	7.8	26.55	0.60	2.3
2.75	74	1	1.4	6	8.1	14.12	0.29	2.1
2.8	111	0	0	4	3.6	21.36	0.18	0.8
3.4[a]	63	0	0	4	6.3	10.74	0.16	1.5
3.45	52	0	0	1	2.0	8.59	0.03	0.3
5.05	60	1	1.7	2	3.3	8.66	0.08	0.9
5.75	61	2	3.3	2	3.3	9.24	0.08	0.9

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

the sub-categories related to criticism shows that for two boys only 7.9 percent and 9.9 percent of their total events of dyadic interactions were critical. Once again there was less Reading than Behavioral Criticism. The combined percentages for the two remaining boys were 18.5 percent and 18 percent of their total events of dyadic contacts. Inspection of the collation sheets indicated that most of the observed criticism received by both boys occurred on a single day. For the one boy 2.27 minutes of the total 2.58 minutes occurred during one reading lesson. It was also found that these boys represented opposite ends of the achievement continuum with one having a mean reading achievement grade of 2.1 and the other of 5.0.

Teacher B.-- The collated data for Teacher B are presented in Table 8. This table shows that there are slight differences in all of the categories except Total Duration of Behavioral Criticism, in which the ratio of the boys and girls means was 4.1. However, this apparent difference was not statistically significant.

A more detailed examination of the data collated for Teacher B is presented in Table 9. Inspection of the categories Events of Behavioral Criticism and Total Duration of Behavioral Criticism clearly shows that one

TABLE 8

DYADIC CRITICISM OF BOYS AND GIRLS-TEACHER B[a]

	Events				Durations (minutes)	
	Total interactions	Total reading interactions	Reading criticism	Behavioral criticism	Reading interactions	Behavioral criticism
Boys						
Total	583	557	9	24	148.37	1.68
Mean (per boy)	72.9	69.6	1.1	3.0	18.5	0.34
Girls						
Total	431	415	10	15	122.31	0.54
Mean (per girl)	61.6	59.3	1.4	2.1	17.5	0.08
Ratio						
$\frac{\text{Boys mean}}{\text{Girls mean}}$	1.18	1.17	0.79	1.43	1.06	4.30
Mann Whitney U						
p	.48	.50	.43	.48	.48	.39

[a] The statistical analysis was conducted using data weighted by a factor of 1.25 for those children who were absent on one occasion.

TABLE 9

DYADIC CRITICISM OF INDIVIDUAL BOYS AND GIRLS-TEACHER B

	Events					Duration		
	Total	Reading (criticism)		Behavioral (criticism)		Total inter-actions	Behavioral (criticism)	
		No.	% of total	No.	% of total	Mins.	Mins.	% of total
Boys								
1.9[a]	105	0	0	0	0	27.18	0	0
2.15	147	3	2.1	12	8.2	29.94	2.06	6.9
3.5	46	2	4.3	1	2.1	25.49	0.03	0.1
4.8[a]	69	3	4.3	5	7.2	16.41	0.35	2.1
4.85[a]	56	0	0	1	2.2	21.30	0.03	0.1
5.05	65	1	1.5	2	2.9	12.30	0.08	0.7
5.75	44	0	0	3	6.8	8.78	0.13	1.5
6.3	51	0	0	0	0	9.86	0	0

Continued

TABLE 9

(Continued)

	Events					Duration		
	Total	Reading (criticism)		Behavioral (criticism)		Total interactions	Behavioral (criticism)	
		No.	% of total	No.	% of total	Mins.	Mins.	% of total
Girls								
1.45	89	0	0	0	0	32.02	0	0
4.15	39	0	0	0	0	11.17	0	0
4.15	66	1	1.5	2	3	16.31	0.06	0.04
4.75	57	0	0	0	0	17.61	0	0
4.9	55	5	9.3	4	7.4	21.71	0.17	0.8
5.2	54	1	1.9	4	7.4	14.98	0.15	1.0
5.95[a]	71	3	4.2	5	7.0	9.13	0.16	1.8

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

boy received more criticism than any of the other children. The total duration of 2.06 minutes for Behavioral Criticism far exceeds the duration of any other boy or girl. Thus the mean number of events of Behavioral Criticism and the mean duration for the boys in the above mentioned categories are weighted by the scores of one boy.

Two features of Table 9 are considered of importance. The first is that during five days of consecutive coding, four children had no critical contacts with the teacher. Of these children two were low achievers, one boy and one girl, and two were high achievers, again one boy and one girl. Secondly, the mean durations for boys and girls indicate that the teacher spent the same amount of time in dyadic interaction with both boys and girls.

The Association of Reading and Behavior-Oriented Dyadic Interactions and the Reading Achievement of Boys and Girls

Treatment of the Data

To establish the degree of association between the dyadic interactions and reading achievement of boys and girls, the frequency and duration of Reading and Behavior-Oriented interactions and the number of phases in each of the five sub-categories were correlated against the mean reading achievement score of each child. Finally, to determine the effect of dyadic initiations, the frequency of teacher and child initiated interactions was correlated against reading achievement. The Spearman Rank Correlation Coefficient was used to determine the degree of association between these measures. The .05 level of significance was adopted for the purpose of this investigation.

Results: Teacher A

Frequencies and Durations.-- Table 10 presents the frequencies and durations of Reading and Behavior-Oriented interactions recorded in the classroom of Teacher A. No significant correlations were established for the boys in any of the sub-categories. However, the indicated trend was towards high achieving boys having shorter and less frequent interactions than low achieving boys; and the lack of statistical significance may be due in part to the small number of boys in this class. Statistical significance was established for the girls in the sub-categories Duration of Reading-Oriented Interactions (-0.82 $p<.05$), Mean Duration of Reading-Oriented Interactions (-0.93 $p<.01$), Frequency of Behavior-Oriented Interactions (-0.87 $p<.05$) and

TABLE 10

READING AND BEHAVIOR ORIENTED INTERACTIONS AND READING ACHIEVEMENT (TEACHER A-BOYS)

Mean reading achievement	Reading-Oriented Interactions			Behavior-Oriented Interactions		
	Frequency	Duration	Mean duration	Frequency	Duration	Mean duration
2.1	61	27.58	0.452	12	2.58	0.215
2.2[a]	58	15.31	0.264	10	1.04	0.104
4.85	58	20.45	0.353	5	0.19	0.038
5.0	58	13.25	0.247	8	1.82	0.228
rho	-0.77	-0.8	-0.8	-0.8	-0.4	+0.2
p	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

Continued

TABLE 10

(Continued)

TEACHER A-GIRLS

Mean reading achievement	Reading-Oriented Interactions			Behavior-Oriented Interactions		
	Frequency	Duration	Mean duration	Frequency	Duration	Mean duration
1.7	71	25.88	0.365	11	0.67	0.061
2.75	45	13.83	0.307	6	0.29	0.048
2.8	69	21.10	0.306	6	0.26	0.043
3.4[a]	41	10.26	0.250	6	0.20	0.050
3.45	32	8.39	0.262	4	0.48	0.080
5.05	48	8.58	0.179	2	0.08	0.040
5.75	46	9.16	0.199	2	0.08	0.040
rho	-0.35	-0.82	-0.93	-0.87	-0.76	-0.52
p	N.S.	<.05	<.01	<.05	<.05	N.S
Boys and girls						
rho	-0.42	-0.69	-0.81	-0.77	-0.65	-0.46
p	N.S.	<.05	<.01	<.01	<.05	N.S

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

Duration of Behavior-Oriented Interactions (-0.76 $p<.05$). When the relative measures were combined for boys and girls statistical significance was established in the following sub-categories, Duration of Reading-Oriented Interactions (-0.69, $p<.05$), Mean Duration of Reading-Oriented Interactions (-0.81, $p<.01$), Frequency of Behavior-Oriented Interactions (-0.77, $p<.01$) and Duration of Behavior-Oriented Interactions (-0.65, $p<.05$). In each category the direction of the correlation was towards low achieving children receiving longer and more frequent interactions with the teacher.

Phases of interactions.-- The phases of interactions were tabulated (Table 11) and correlated against reading achievement. No significant correlations were established for the boys in any of the sub-categories, again, this may be due to the small number of boys. Statistically significant correlations were established for the girls in the sub-categories Reading-Oriented Praise (-0.86, $p<.05$), Reading-Oriented Instruction (-0.7 $p<.05$) and Behavior-Oriented Criticism (-0.87, $p<.05$). The combining of the measures obtained for boys and girls increased the significance of the correlation obtained for Reading-Oriented Praise (-0.83, $p<.01$), and the same level of significance was established in the categories Reading-Oriented Instruc-

TABLE 11

PHASES OF DYADIC INTERACTIONS AND READING ACHIEVEMENT

TEACHER A-BOYS

Mean reading achievement	Phases				
	Reading-Oriented			Behavior-Oriented	
	Praise	Instruction	Criticism	Praise	Criticism
2.1	25	249	17	0	17
2.2[a]	28	180	0	3	11
4.85	22	202	2	0	5
5.0	13	193	8	1	15
rho	-0.8	-0.4	-0.2	-0.25	-0.4
p	N.S.	N.S.	N.S.	N.S.	N.S.

Continued

TABLE 11

(Continued)

TEACHER A-GIRLS

Mean reading achievement	Phases				
	Reading-Oriented			Behavior-Oriented	
	Praise	Instruction	Criticism	Praise	Criticism
1.7	39	286	4	3	11
2.75	26	162	1	0	8
2.8	43	237	0	3	4
3.4[a]	21	146	0	3	4
3.45	19	110	0	3	1
5.05	11	125	1	0	2
5.75	14	151	2	0	2
rho	-0.86	-0.7	-0.11	-0.43	-0.87
p	.05	.05	N.S.	N.S.	.05
Boys and girls					
rho	-0.83	-0.60	-0.02	-0.39	-0.60
p	<.01	<.05	N.S.	N.S.	<.05

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

tion (-0.6 p<.05) and Behavior-Oriented Criticism (0.60, p<.05). The significance of these correlations indicates that the low achieving children received more Reading-Oriented Praise and Instruction, and more Behavior-Oriented Criticism than high achieving children. This trend is particularly strong in the subcategory Reading Praise.

Teacher and child initiated interactions.-- The frequency of teacher initiated and child initiated interactions were correlated against the reading achievement of individual boys and girls. No significant correlations resulted from this analysis. The findings of this analysis are presented in Table 12.

Results: Teacher B

Frequencies and durations.-- The frequency and duration of Reading-Oriented and Behavior-Oriented interactions recorded for Teacher B were correlated against the reading achievement of individual boys and girls. The results of this analysis are presented in Table 13. Two of the sub-categories were significantly correlated for the boys. These were the Duration of Reading-Oriented Interactions (-0.94, p<.01), and the Mean Duration of Reading Interactions (-0.68, p<.05). These particular categories were not signifi-

TABLE 12

TEACHER AND CHILD INITIATED INTERACTIONS

TEACHER A

Mean reading achievement	Frequency of interactions Teacher initiated	 Child initiated	Ratio Teacher/child
Boys			
2.1	58	15	3.9
2.2[a]	53	15	3.5
4.85	55	8	6.9
5.0	59	7	8.4
rho	+0.4	0.85	0.8
p	N.S.	N.S.	N.S.
Girls			
1.7	72	10	7.2
2.75	40	11	3.6
2.8	60	15	4.0
3.4[a]	38	9	4.2
3.45	34	2	17
5.05	40	10	4.0
5.75	35	13	2.7
rho	-0.7	+0.04	+0.29
p	N.S.	N.S.	N.S.
Boys and girls			
rho	-.39	+.41	+.05
p	N.S.	N.S.	N.S.

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

TABLE 13

READING AND BEHAVIOR ORIENTED INTERACTIONS AND READING ACHIEVEMENT

TEACHER B-BOYS

Mean reading achievement	Reading-Oriented Interactions			Behavior-Oriented Interactions		
	Frequency	Duration	Mean duration	Frequency	Duration	Mean duration
1.90[a]	78	27.19	0.349	0	0	0
2.15	96	27.88	0.290	12	2.06	0.172
3.5	36	25.46	0.707	1	0.003	0.030
4.8[a]	50	16.06	0.321	4	0.35	0.088
4.85[a]	48	21.23	0.442	1	0.03	0.030
5.05	51	12.22	0.240	2	0.08	0.040
5.75	36	8.65	0.240	3	0.13	0.043
6.3	43	9.68	0.225	2	0.18	0.090
rho	-0.57	-0.94	-0.68	+.20	+0.24	+0.34
p	N.S.	<.01	<.05	N.S.	N.S.	N.S.

Continued

TABLE 13

(Continued)

TEACHER B-GIRLS

Mean reading achievement	Reading-Oriented Interactions			Behavior-Oriented Interactions		
	Frequency	Duration	Mean duration	Frequency	Duration	Mean duration
1.45	59	32.02	0.542	0	0	0
4.15	31	11.17	0.360	0	0	0
4.15	51	16.25	0.319	2	0.06	0.030
4.75	45	17.61	0.391	0	0	0
4.9	39	21.47	0.551	4	0.87	0.218
5.2	38	14.83	0.390	4	0.15	0.038
5.95[a]	55	8.96	0.163	5	0.60	0.032
rho	-0.16	-0.49	-0.26	+0.85	+0.79	+0.711
p	N.S.	N.S.	N.S.	$<.05$	$<.05$	$<.05$
Boys and girls						
rho	-.37	-0.82	-0.51	+0.52	+0.50	+.53
p	N.S.	$<.01$	$<.05$	$<.05$	$<.05$	$<.05$

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

cantly correlated for the girls. However, inspection of the reading achievement scores (Table 13) indicates that, except for one girl, this group was comprised of extremely high achieving girls; and this could well explain the lack of a statistically significant correlation. Inspection of the measures obtained by the low achieving girl (1.45 mean reading achievement), and the measures obtained by the highest achieving girl (5.95 mean reading achievement) suggests that the Duration and Mean Duration measures of Reading-Oriented Interactions were highly differentiated according to the reading achievement of the two girls. The total Duration of Reading Interactions for the low achieving girl was 32.02 minutes, whilst for the high achieving girl the equivalent measure was 8.96 minutes. When the Durations and Mean Durations of Reading-Oriented Interactions were combined for boys and girls the resulting correlations were -0.82, $p<.01$ and 0.51, $p<.05$, respectively. The fact that the significant levels of the correlations for the combined class were the same as those for the boys supports the position that the lack of correlation for the girls was due to their similiar levels of reading achievement.

Another notable finding was that the Frequency and Duration of Behavior-Oriented Interactions were correlated for the girls (+0.85 $p<.05$ and +0.79 $p<.05$, respectively) and not for the boys. High achieving girls received significantly more criticism. This effect is clearly shown by the data presented in Table 13, and contrasts with the findings obtained for Teacher A (Table 10).

Phases of interactions.-- Table 14 presents the phases of interactions correlated against the reading achievement of boys and girls. Two correlations were statistically significant for the boys, Reading-Oriented Praise (-0.95, $p<.01$), and Reading-Oriented Instruction (-0.87, $p<.01$). These sub-categories were non-significant for the girls. When the boys and girls measures were combined statistical significance was established (Praise -0.79, $p<.01$, and Instruction -0.55, $p<.05$). The results of the data analysis indicated that low achieving boys and girls received more phases of Reading-Oriented Praise and Instruction than high achieving boys and girls. Finally, for girls, Behavior-Oriented Criticism was statistically correlated with reading achievement (+0.85, $p<.05$), high achieving girls receiving significantly more criticism than low achieving girls. This is clearly shown by the tabulated measures presented in Table 14.

TABLE 14

PHASES OF DYADIC INTERACTIONS AND READING ACHIEVEMENT

TEACHER B-BOYS

Mean reading achievement	Phases				
	Reading-Oriented			Behavior-Oriented	
	Praise	Instruction	Criticism	Praise	Criticism
1.9[a]	46	349	0	0	0
2.15	46	394	3	0	23
3.5	14	186	3	0	1
4.8[a]	16	196	3	0	10
4.85[a]	13	198	0	0	1
5.05	9	150	1	0	2
5.75	5	139	0	0	3
6.3	8	139	0	2	0
rho	-0.95	-0.87	-0.44	+0.58	-0.11
p	<.01	<.01	N.S.	N.S.	N.S.

Continued

TABLE 14

(Continued)

TEACHER B-GIRLS

	Phases				
	Reading-Oriented			Behavior-Oriented	
Mean reading achievement	Praise	Instruction	Criticism	Praise	Criticism
1.45	48	359	0	0	0
4.15	10	103	0	0	0
4.15	13	187	1	0	2
4.75	18	171	0	0	0
4.9	6	185	11	0	4
5.2	12	130	1	0	4
5.95[a]	13	198	4	0	5
rho	-0.37	-0.14	+0.70	+0.0	+0.85
p	N.S.	N.S.	N.S.	N.S.	<p.05
Boys and girls					
rho	0.79	-0.55	+0.12	+0.43	+0.30
p	<.01	<.05	N.S.	N.S.	N.S.

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

Teacher and child initiated interactions.-- The frequency of teacher initiated and child initiated interactions were correlated with the reading achievement of individual boys and girls. The data is presented in Table 15. No statistically significant correlations were established.

Distinguishing Patterns of Dyadic Interactions

Treatment of the Data

The isolation of idiosyncratic dyadic interactional patterns was approached through an intensive analysis of the dyadic interactions of each child. The findings of this analysis were then related to the informal observations made in the classrooms. Individual evaluations of the dyadic interactions of high and low achieving boys and girls are presented for Teacher A and B. Each evaluation contains a sample of sequential combinatory codings extracted from the collated data. Accompanying each evaluation is a brief descriptive paragraph.

Results

Teacher A.-- There were several similarities between the interactions of high and low achieving boys with Teacher A. Similar patterns of Behavior-Oriented

TABLE 15

TEACHER AND CHILD INITIATED INTERACTIONS

TEACHER B

Mean reading achievement	Frequency of interactions: Teacher initiated	Frequency of interactions: Child initiated	Ratio Teacher / Child
Boys			
1.90[a]	68	10	6.8
2.15	75	33	2.3
3.5	28	9	3.1
4.8[a]	41	13	3.2
4.85[a]	41	8	5.1
5.05	42	11	3.8
5.75	25	14	1.8
6.3	33	12	2.8
rho	-0.61	+0.12	-0.38
p	N.S.	N.S.	N.S.
Girls			
1.45	54	5	10.8
4.15	28	3	9.3
4.15	42	11	3.8
4.75	34	11	3.1
4.9	35	8	4.4
5.20	34	8	4.3
5.95[a]	48	12	4.0
rho	-0.11	+0.58	-0.38
p	N.S.	N.S.	N.S.
Boys and girls			
rho	-0.41	+0.31	-0.33
p	N.S.	N.S.	N.S.

[a] Child absent on one occasion - interactional data weighted by a factor of 1.25.

Criticism were noted and comparable amounts of time were spent with the four boys. Differences existed in the number of phases in the interactions and in the phases of praise. The interactions of the low achieving boys contained multiple phases and frequent praise. The interactions of the high achieving boys often contained three phases. The teacher questioned, the child responded and the teacher acknowledged the response.

The patterns of high achieving and low achieving girls interacting with the teacher were easy to identify. The interactions of low achieving girls were often sustained containing many phases of praise whilst interactions of the high achieving girls were of short duration, and usually consisted of three phases, question - response - new information, and occasionally praise.

A high achieving boy.-- A high achieving boy who interacted frequently with the teacher. Brief censure, if ignored was followed by an extended behavioral interaction. Most of the recorded dyadic Reading Instructional interactions had between two and four phases. A common pattern emerged in which the teacher posed a question, the child responded, and the teacher acknowledged, praised or offered new information following the response.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
					1	4
	2 1 3		11			
		1	3			
	2 1 3		5			
3	2 1		24			
	2 1		4			
	2 1		1			
	1 3 2 4		23			
					2 1 3	20

Figure 1. Teacher A interacting with a high achieving boy.
Total duration of Reading-Oriented Interactions: 14.35 minutes.
Total duration of Behavior-Oriented Interactions: 1.82 minutes.
Child:Teacher Initiations: 1:4.
Reading achievement: Vocabulary 4.9, Comprehension 5.6.

A low achieving boy.-- This boy was reading at second grade level which for this particular group of children placed him at the lower end of the reading achievement continuum. His interactions were mixed, with short two and three phase interactions interspersed with extended teacher-child contacts. No criticism of reading occurred during the observational period.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
					1	2
	1 2		9			
					1	2
5	2 4 1 3		1·49			
	2 1		2			
	2 1 3		8			
2	1		3			
5 8	2 4 7 1 3 6		29			

Figure 2. Teacher A interacting with a low achieving boy.
Total duration of Reading-Oriented Interactions: 15:31[a].
Total duration of Behavior-Oriented Interactions: 1.04[a].
Total number of interactions: 68.
Child:Teacher Initiations: 1:3.9.
Reading achievement: Vocabulary 2.3, Comprehension 2.1.
[a] Weighted

A high achieving girl.-- The interactions of this quiet, high achieving girl were short and had few phases. Each interaction was totally directed towards her reading assignments. Praise was given for excellence rather than forming an integral component of dyadic interactions. Answers to questions were accepted by the teacher, or new information was given which directed this child towards the next phase of instruction.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	2 13		17			
	2 13		15			
	2 13		7			
3	2 1		4			
	2 13		4			

Figure 3. Teacher A interacting with a high achieving girl.
Total duration of Reading-Oriented Interactions: 8.58.
Total duration of Behavior-Oriented Interactions: 0.08.
Total number of interactions: 50.
Child:Teacher Initiations: 1:4.
Reading achievement: Vocabulary 4.9, Comprehension 5.6.

A low achieving girl.-- The interactions of this low achieving girl with Teacher A were characterized by the many phases and the frequent phases of praise. The child was slow to answer and the duration measures reflect the time allowed by the teacher for the child's response. Many 3 and 4 phase interactions were recorded during group instruction, whilst the extended interactions usually occurred upon completion of a group lesson or at some quiet period during the morning.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	1 2		4			
5	2 4 1 3		1·18			
5	2 4 1 3		41			
5 8	2 4 7 1 3 6		22			
5	2 4 1 3		25			
6	2 4 5 1 3		23			

Figure 4. Teacher A interacting with a low achieving girl.
Total duration of Reading-Oriented Interactions: 25.88 minutes.
Total duration of Behavior-Oriented Interactions: 67 minutes.
Total number of interactions: 82.
Child:Teacher Initiations: 1:7.2.
Reading achievement: Vocabulary 1.8, Comprehension 1.6.

Teacher B.-- There were consistent differences in the teacher-child dyadic interactions of Teacher B with high and low achieving boys. Teacher B spent less time with the high achievers. Many interactions were brief with an occasional extended interaction taking place when a boy required new information for his studies to proceed. The low achieving boys spent more time interacting with the teacher and many of the interactions contained multiple phases of instruction and praise.

The analysis of the data obtained for high and low achieving girls resulted in the isolation of similar patterns to those of the boys. Interactions for the high achieving girls were usually brief, and these were interspersed with extend multiple phase contacts. The interactions of the single low achieving girl were sustained with multiple phases of instruction and praise.

In the classroom of Teacher B dyadic interactional patterns which distinguished between boys and girls were not identifiable.

A high achieving boy.-- An extraordinarily high achieving boy with a modest number of interactions. He initiated when needing new information or acceptance of a completed task. No interactions were recorded for this child on the second day of the coding period. Examples of two interactional patterns are presented. The first illustrates a noticeable pattern in which the teacher initiated three phase reading instructional interactions, followed by an interaction initiated by the child. The second illustrates the occasional sustained interactions which were totally focussed on the reading assignment. Praise was given only for exceptionally well executed assignments.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	2 1 3		4			
	1 3 2		5			

Example 1

	1 3 5 7 2 4 6 8		60			
	9 11 10					
	4 8 10 2 6 1 3 5 7 9 11		40			

Example 2

Figure 5. Teacher B interacting with a high achieving boy.
Total duration of Reading-Oriented Interactions: 9.68 minutes.
Total duration of Behavior-Oriented Interactions: 0.18 minutes.
Total number of interactions: 45.
Child:Teacher Initiations: 1:2.8.
Reading achievement: Vocabulary 6.8, Comprehension 5.8.

A low achieving boy.-- This child was totally focussed on the task of reading. Assignments were studied and carefully completed. Many interactions were sustained with the boy responding readily to each question or direction. Praise was freely given. The interactions depicted here are two of the longest recorded. They emphasize the amount of praise given to this low achieving boy and the total absence of critical contacts.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	2 4 6 8 1 3 5 7		1·10			
15	10 12 14 9 11 13 16					
20	17 19 22 18 21 23					
5 8	2 4 7 10 1 3 6 9		2·12			
11 16 20	13 15 17 19 12 14 18					
23 27 29	22 24 26 28 21 25					
34 37	30 33 36 31 32 35					
43	38 40 42 39 41					

Figure 6. Teacher B interacting with a low achieving boy.
Total duration of Reading-Oriented Interactions: 27.19 minutes.
Total duration of Behavior-Oriented Interactions: 0 minutes.
Total number of Interactions: 78
Child:Teacher Initiations: 1:6.8.
Reading achievement: Vocabulary 1.7, Comprehension 2.1.

A high achieving girl.-- On the first two days of coding only three interactions were noted for this high achieving girl. On the first day each interaction consisted of two phases. The first was child initiated, the child asking for information concerning an assignment and the teacher responding. The second was teacher initiated later in the morning. The following day one extended dyadic interaction took place. The teacher and child proofread a story she had written, and discussed ways in which the story could be improved. The information given to the child was enough to sustain her through the morning lesson.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	1 2		5			
	2 1		5			

Day 1

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	2 4 6 1 3 5 7		2.44			
	8 10 12 9 11 13					
15	16 17 14 18					

Day 2.

Figure 7. Teacher B interacting with a high achieving girl.
Total duration of Reading-Oriented Interactions: 14.83 minutes.
Total duration of Behavior-Oriented Interactions: 0.15 minutes.
Total number of interactions: 43.
Child:Teacher Initiations: 1:4.3.
Reading achievement: Vocabulary 5.5, Comprehension 4.9.

A low achieving girl.---This child was a non-reader at the beginning of the fall semester. She completed her third pre-primer reading book during the observational period. She worked quietly and steadily. Interactions were seldom initiated by the child and those iniated by the teacher were sustained. The interactions were slow, the teacher waiting for the child to quietly answer. The teacher spent the most time with this child. Most interactions were peppered with praise as the teacher encouraged each step that the child took. No censure was recorded during the five observational days.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	2 4 1 3 5		13			
5 7	2 4 6 1 3		22			
3	2 4 6 8 1 5 7 9		1·30			
15	10 12 14 11 13					
19	16 18 17					
5 8	2 4 7 1 3 6		27			

Figure 8. Teacher B interacting with a low achieving girl.
Total duration of Reading-Oriented Interactions: 32.02 minutes.
Total duration of Behavior-Oriented Interactions: 0 minutes.
Total number of interactions: 59.
Child:Teacher Initiations: 1:10.8.
Reading achievement: Vocabulary 1.5, Comprehension 1.4.

The Survey

The major thrust of this section of the investigation was to collect, collate and analyze examples of teacher-child dyadic interactions in second grade classrooms in more typical learning environments. One entire reading lesson was observed in each of the 5 classrooms, and due to the survey nature of this section of the study, no measure of reading achievement was obtained. Schools were chosen which represented inner-city, urban and suburban settings. They also represented lower-socioeconomic to upper-socioeconomic environments.

A Comparative Analysis of the Proportions of Time Spent by the Survey and Study Teachers in Dyadic Interactions with Boys and Girls

Treatment of the Data

To determine the proportion of time that each survey teacher spent in dyadic interactions with boys and girls, the duration measures of Reading-Oriented Interactions and Behavior-Oriented Criticism recorded for boys were compared with the same measures recorded for girls. Due to the total lack of Behavior-Oriented Praise in the dyadic interactions of the survey teachers this measure was excluded. Comparative measures were calculated by dividing the number of boys and girls in each class into their respective duration totals. The resulting data is presented in Table 14 together with the data obtained for the extended study teachers.

Results

The durations of Reading-Oriented dyadic interactions of boys and girls.-- Inspection of the respective amounts of time spent by the teachers indicated minor disparities. For Teacher A and Survey Teachers 3 and 4, the mean duration for the boys were slightly greater than those for the girls (Table 16). The greatest disparity was found in the time spent by Survey Teacher 1; the mean obtained for the boys was 3.03 minutes whilst the comparable measure for the girls was 1.23 minutes. Teacher B and Survey Teacher 2 spent slightly more time in dyadic interactions with the girls than the boys. This data indicated that for these seven teachers there was no consistent pattern which favored either the girls or the boys. However, the extended study teachers spent more time in dyadic interactions than did the Survey Teachers.

The durations of Behavior-Oriented Criticism of boys and girls.-- Disparities existed in the amount of time spent in Behavior-Oriented Criticism (Table 16), six of the teachers spent more time in Behavior-Oriented Criticism with the boys than with the girls. The

TABLE 16

A COMPARATIVE ANALYSIS OF THE PROPORTIONS OF TIME SPENT BY THE SURVEY AND STUDY TEACHERS IN DYADIC INTERACTIONS WITH BOYS AND GIRLS

			Time (minutes) per child per day			
			Reading-Oriented Interactions		Behavior-Oriented Criticism	
Teacher	Boys	Girls	Boys	Girls	Boys	Girls
A	4	7	3.73	2.72	.270	.040
B	8	7	3.39	3.44	.070	.020
Survey						
1[a]	7	7	3.03	1.23	.212	.010
2	9	9	2.09	2.66	.157	.065
3[a]	11	12	1.31	1.02	.040	.013
4[b]	8	8	2.20	1.94	.070	.004
5	12	13	Void	Void	.047	.054

[a] Aide present
[b] Teacher had an M.Ed in Reading.

greatest disparity was recorded for Survey Teacher 1 (boys .212 minutes, girls .01 minutes). Negligible differences existed for Teacher B, and Survey Teacher 5 spent more time in Behavior-Oriented criticism with the girls than the boys. Comparable amounts of time were spent by all the teachers.

A Comparative Analysis of the Reading-Oriented Interactions of the Survey and Study Teachers

Treatment of the Data

To determine the amounts of Reading-Oriented Praise, Instruction and Criticism, the total events in each category for boys and for girls were divided by the respective numbers of boys and girls in each class. The data recorded for Survey Teacher 5 were excluded due to the unusual nature of the teacher-child reading interactions, and the findings for this particular teacher will be discussed in the section 'Distinguishing Patterns of Teacher-Child Dyadic Interactions.'

Results

The data in Table 17 presents the mean events of Reading-Oriented Praise, Instruction and Criticism for the boys and girls taught by the seven observed teachers. One of the principal findings was the paucity of Praise in the dyadic interactions of the Survey Teach-

TABLE 17

A COMPARATIVE ANALYSIS OF THE READING INTERACTIONS OF THE SURVEY AND STUDY TEACHERS

	Reading interactions : Mean events per child per day					
Teacher	Praise		Instruction		Criticism	
	Boys	Girls	Boys	Girls	Boys	Girls
A	3.5	4.1	11.5	9	.75	.17
B	2.5	2.4	10.1	8.7	.25	.02
Survey						
1[a]	2	.29	9.7	6	.86	.86
2	1.4	1.9	8.1	11.2	.4	.2
3[a]	.63	.42	7.8	7.6	.54	.08
4[b]	.38	.25	4.6	2.5	.63	0
5	Void	Void	Void	Void	Void	Void

[a] Aide present.

[b] Teacher had a M.Ed in Reading.

ers. Only Survey Teacher 2 consistently included praise in her dyadic Reading-Oriented interactions. The mean events of Reading Instruction were comparable with the exception of Survey Teacher 4 for whom the mean events per child were particularly low. Finally, there was a general lack of Reading Criticism, less than an event per child with the boys receiving slightly more criticism than the girls.

A Comparative Analysis of the Behavior-Oriented Interactions of the Survey and Study Teachers

Treatment of the Data

To establish the amounts of Behavior-Oriented Praise and Criticism the total events in each of these categories for boys and girls were divided by the relative numbers of boys and girls in each class.

Results

The data presented in Table 18 shows the complete lack of Behavior-Oriented Praise in the dyadic contacts of the Survey Teachers. Comparisons between the amounts of dyadic Criticism were clouded by the presence of aides in the classrooms of Survey Teachers 1 and 3. Informal observations suggested that the censure of the children working on independent assignments was left to the aides whilst the teachers worked

TABLE 18

COMPARATIVE ANALYSIS OF THE BEHAVIORAL INTERACTIONS OF THE SURVEY AND STUDY TEACHERS

Teacher	Behavioral interactions : mean events per child				Behavior-Oriented criticism expressed as a percentage of total events	
	Praise		Criticism			
	Boys	Girls	Boys	Girls	Boys	Girls
A	0.5	1.3	1.75	0.71	9.7	4.6
B	0.25	0.14	0.63	0.43	4.6	2.6
Survey						
1[a]	0	0	2.43	0.43	16.2	5.7
2	0	0	2.30	1.20	18.9	8.3
3[a]	0	0	1.09	0.42	10.8	4.9
4[b]	0	0	1.75	0.25	23.7	6.3
5	Void	Void	1.45	1.23	Void	Void

[a] Aide present.
[b] Teacher had a M.Ed in Reading.

with small reading groups. The mean events of Behavior-Oriented Criticism were comparable for all the teachers. However, the second major finding of this particular analysis was that the percentages of the total mean events per child of the dyadic interactions that were Behavior-Oriented Criticism were considerably smaller for the teachers of the extended study than for the survey teachers. Inspection of the respective percentages obtained for the boys and girls led to the conclusion that except for Teacher B, behavioral censure constituted a larger proportion of the boys' total teacher-child dyadic interactions.

Distinguishing Patterns of Teacher-Child Dyadic Interactions

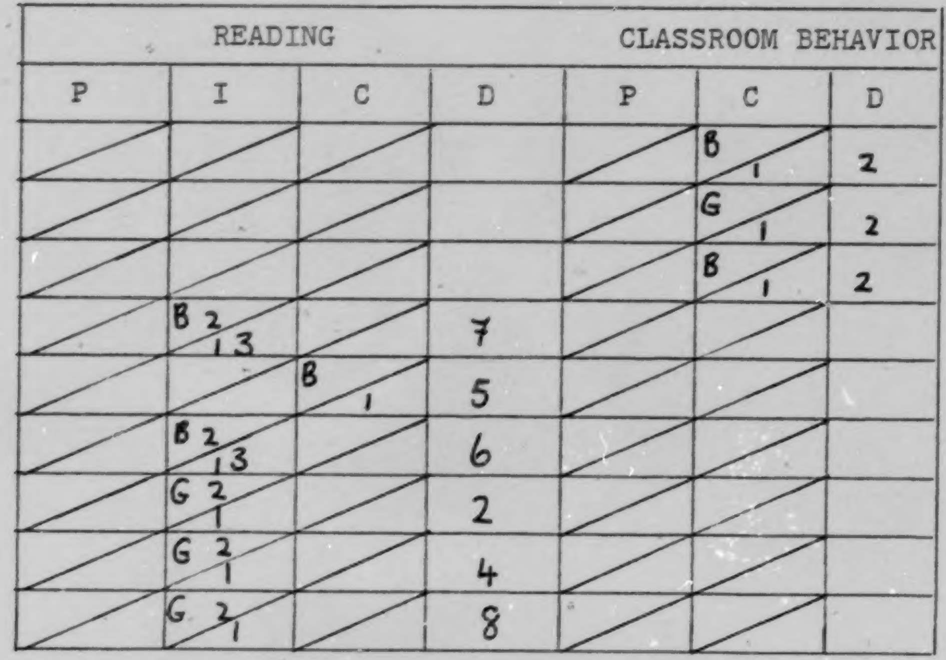
Treatment of the Data

The survey nature of this phase of the study made it impossible to determine whether dyadic interactional patterns distinguished between children of high and low reading ability. However, regardless of achievement, if patterns existed which distinguished between individual children, it would be clearly shown through an inspection of the data. The data were therefore examined in a search for idiosyncratic interactional patterns, and examples presented and discussed.

Results

The analysis of the coded data isolated general patterns of dyadic interactions for each teacher, however patterns were not evidenced which distinguished between individual children. Examples of the teacher-child dyadic interactions of each of the survey teachers are presented.

Survey Teacher 1.-- Characteristic of the dyadic interactions of Survey Teacher 1 was the lack of praise and also the lack of feedback. Many of this teacher's interactions contained two phases, and the responses of the children were seldom acknowledged.



READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
					B 1	2
					G 1	2
					B 1	2
	B 2 1 3		7			
		B 1	5			
	B 2 1 3		6			
	G 2 1		2			
	G 2 1		4			
	G 2 1		8			

Figure 9. The teacher-child dyadic interactions of Survey Teacher 1.

A number of extended interactions were recorded, and these weighted the mean durations presented in Table 16 as the majority of these interactions were with one boy. The boys consistently received more Reading Praise and Behavioral Criticism. Except for the one boy patterns which distinguished between individual children were not isolated.

Survey Teacher 2.-- Feedback was an integral component of this teacher's dyadic interactions (Figure 10). The majority of the interactions were of short duration consisting of three to five phases.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	G 2 1 3		10			
5	G 2 4 1 3		11			
5	G 2 4 1 3		7			
	B 2 1 3		6			
	G 2 1 3		10			
	B 2 1		12			
	G 2 1 3		10			

Figure 10. The teacher-child dyadic interactions of Survey Teacher 2.

Reading Praise was an occasional feature of Instructional contacts. Several extended interactions were recorded for both boys and girls; such contacts usually occurred at the conclusion of group instruction. Once again distinguishing patterns were not isolated.

Survey Teacher 3.-- The most noteable features of this teacher's interactions were the lack of feedback and the paucity of praise (Figure 11). The majority of the interactions consisted of two phases. The teacher would question the child and the child would respond.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
	G 2 1		19			
	B 2 1		9			
	B 2 1		4			
	G 2 1		2			
	B 2 1		12			
	B 2 1		9			
	B 2 1		14			
	G 2 1		3			
	B 1 2		4			

Figure 11. The teacher-child dyadic interactions of Survey Teacher 3.

The lack of feedback was quickly evident during the coding period and the observer considered the possibilities of non-verbal feedback. It was found that the teacher seldom acknowledged the childrens' responses; once a response was elicited she quickly posed a question to another child. Only one interaction lasted for longer than one minute and pacing differentials were not evidenced in the coded data.

Survey Teacher 4.-- This teacher's dyadic interactions were often sustained (Figure 12). She acknowledged each response, qualifying, modifying, or presenting further questions. Reading Praise was seldom featured; however interactions were often closed with a thank you. No movement was permitted and censure was usually group or class oriented. As previously noted this teacher had a M.Ed in Reading.

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
					B 1	7
3	G 2 1		9			
	B 2 4 6 1 3 5		35			
	8 10 7 9 11					
	G 2 4 6 1 3 5 7		15			
	G 2 4 6 1 3 5 7		56			
		B 1	1			
	B 2 4 6 1 3 5 7		30			

Figure 12. The teacher-child dyadic interactions of Survey Teacher 4.

Survey Teacher 5.-- Early in this section it was noted that the interactional patterns of Survey Teacher 5 were somewhat unusual. During the observational period the observer experienced difficulties coding the dyads. The teacher often initiated or responded to a child's initiation and then responded to a second child before the first interaction had reached its conclusion (Figure 13). An example of such an interactional pattern would be that whilst interacting with child A, child B would interject a question. "How do you spell build?" The teacher would respond, "Don't interrupt. BUILD", and immediately continue. "This work is O.K. Where's your spelling book". The

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
a	B 1 2 3		32			
aa	G 1 3 2 4		27			
a	G 1 3 2 4		10			
					B 1	2
	G 1 3 2 4		2·01			
aaa	B 3 5 7 1 2 4 6 8		20			
	G 1 2		7			

Figure 13. The teacher-child dyadic interactions of Survey Teacher 5.
a Interruption

latter sentences addressed child A. Thus many of the dyads were uncodable and accurate duration measures impossible.

The observer, acknowledging that most of the measures could not be included in the survey, continued coding through the lesson for the purpose of this analysis. Several findings are of interest. The category Behavioral Criticism was unaffected by the unusual interactional patterns. Censure was brief and differences in the number of critical contacts of boys and girls extremely small. Another notable finding is the lack of Reading Praise. Only three events of Praise were coded during the observational period.

Discussion

Informal Observations: The Extended Study

The analysis of the coded dyadic interactions hints of the intricacies of the system of communication between the teacher and the child during reading instruction. The informal observations focused on the possible underlying structures which were reflected in the dyadic interactions of the teachers with individual boys and girls.

Focus on Reading

The purposeful pursuit of reading activities was immediately evident upon entrance to the classrooms of either Teacher A or B. Certainly the experience of the teachers, the small class sizes and the exceptional educational environment greatly affected the climate in the classrooms. Looking beyond these components several factors emerged.

Freedom of movement.-- Informal observations in the classrooms of Teachers A and B indicated that within established boundaries movement was totally accepted. Children were free to collect materials, use reference texts and to discuss work with their friends.

In the classroom of Teacher A reading activities were paced to fulfill the alloted time. Occasionally, assigned reading activities were completed and children were then allowed to choose an independent activity. However, Teacher A acknowledged that for one particular boy constant attention was difficult to maintain, and she therefore allowed him to intersperse reading assignments with periods of free time, thereby removing much of the pressure of conformity.

In the classroom of Teacher B, choosing activities once reading assignments were completed was a well established practice. Children worked towards their free time when they choose to read trade books, played with blocks or spent time in the "quiet corner." The role of this corner depended upon the children; plays were read, children experimented with dramatic improvisations, and on one occasion a group of boys played with some small cars that they had brought to school.

Attention spans varied but it appeared that the freedom of movement was of more importance to the boys than the girls. Informal observations indicated that both random and compulsive movement was greater for boys than for girls; in every way boys were more mobile. The movement of the girls appeared to be motivated by the practical circumstances, such as the sharpening of pencils or the collection of more paper.

Teachers A and B were in full agreement that purposeful movement was entirely acceptable, and essential for such young children. However, they felt that movement needed restricting when it interfered with the child's work or with the work of other children. Teacher A emphasized the need for boundaries and the need for censure if the boundaries were overreached.

The physiological immaturity of some boys is well documented. In Chapter II Wilson et al (1939) was quoted as saying that physiologically immature boys would attend inconsistently and be unable to control large muscle movement. The acceptance of mobility and respites from reading activities minimized the social pressures (Bentzen, 1963) and may partly account for the focus on reading and the paucity of behavioral criticism of individual boys.

The clear definition of reading activities.--Children who are working do not need excessive censure and for this reason the components of the reading lessons which may have contributed to the childrens' industry are discussed.

In each classroom reading activities were clearly explained at the beginning of each reading lesson. All class and group assignments were written upon the chalkboard. Each activity was then discussed, and time allowed for the questions of individual children. In addition to these assignments, activities were discussed with individual children at the commencement of the reading period or at the closure of group instruction. Although the clear definition of reading activities gives children direction, it does not in itself ensure the purposeful pursuit of reading tasks. If assignments are too difficult or too easy one would expect either frustration or boredom to be the result.

Discussions with both teachers revealed the underlying structures on which reading assignments were based.

Evaluation.-- Extensive evaluative procedures took place prior to the childrens' entrance to the second grade and at the beginning of the fall semester. During the first few weeks the children engaged in independent language arts activities, thus freeing both teachers to evaluate each child. The Botel Informal Reading Inventory, Word Recognition Test and Word Opposite Test were administered and each child read from several basal reading texts. In addition, discussions took place with the other second grade teachers. Based on the resulting assessment, the children were tentatively assigned to reading groups. Both teachers acknowledged that groupings were subject to change.

The initial assessments plus the onward going weekly individual evaluations appeared to be a critical component in ensuring that each child was actively involved. Unquestionably every child must find certain activities either boring or frustrating but by knowing each child's capabilities, both strengths and weaknesses, the teachers had the opportunity to tailor reading activities to individual needs.

The need for feedback.-- Provisions were made by both teachers for feedback to individual boys and girls. They explored the underlying processes on which the child's responses were founded. Both teachers modified, qualified, praised, or accepted the responses of children. Usually this process was contained within one contact; however on several occasions sequential two phase interactions took place with brief pauses between each.

Pacing.-- The pacing of work to meet the individuals' needs may also be a contributing factor in the lack of visible differences in the behavior of these individual boys and girls. High achieving children were receiving instruction on flexible reading rates, note taking, annotated bibliographies, and proof reading; and grappling with such concepts as trust and plagiarism. The children in the initial phases of learning to read were building a basic sight vocabulary and grapheme-phoneme correspondence.

Caplan (1973) manipulated experimentally the success and failure of boys and girls in an educational environment and found that asocial behavioral differences only existed under some conditions. For boys, failure at a scholastic activity in a pressured social environment led to less predictable behavior whereas girls turned more consistently towards social approval. By ensuring successful reading encounters for each child, Teachers A and B minimized possible frustration which could result in behavioral difficulties. The success experienced by the boys is postulated as another key reason for the lack of disruptive behavior.

Procedures and reading activities.-- The children taught by both teachers seemed at ease with the organization of the classrooms and it was noted that procedural contacts were kept to a minimum. It appeared that procedures necessary for the smooth progression of activities were clearly defined in both classrooms. Two observations were made of Teacher A defining acceptable classroom procedures to the class. In each instance it was a step by step process until the children were au fait with the system and needed no further assistance.

Dyadic Criticism of Boys and Girls

Informal observations in the classrooms of Teachers A and B uncovered few clear cut differences between the boys and the girls. The response to reading instruction varied from child to child with most of the children actively involved in their reading pursuits.

Teacher A.-- In the classroom of Teacher A, the censure of both girls and boys appeared highly dependent upon the over stepping of boundaries. Disruptive behavior was not permitted and was quickly censured. Very often censure meant just sternly saying a child's name with a look of disapproval. However, one of the explanations that can be postulated for the slightly higher durations of critical contacts of the boys was the approach of Teacher A to repeated misbehavior. An inspection of the original coding sheets verifies the short duration of many behavioral contacts, but sustained contacts did occur, and this was one of the major differences in the patterns of critical contacts for boys and girls.

On most occasions, rapid censure was sufficient for the girls of this group to return to their reading assignments. Similarly, one high achieving boy and one low achieving boy responded readily to censure. This was not the case for the two remaining boys. Several sustained critical interactions were recorded for these boys, and the nature of these interactions is of interest. A sustained dyadic interaction usually took place after repeated censure, but not at a critical moment. Brief censure by the teacher was followed by a return to instructional interactions with the children with whom she was working. At a convenient moment, when the children were involved with assignments or during the transition between reading groups, the child was taken to one side and the behavioral difficulty discussed, and new guidelines concerning appropriate behavior defined. These interactions were usually whispered and often seemed to be unnoticed by the other children. For the one boy (Mean Reading Achievement 5.0) this proved an effective approach to censure, and only three critical behavioral interactions of more than twenty seconds were recorded, and these occurred on the third day of the observations. No dyadic critical contacts occurred on the second day.

The second boy (Mean Reading Achievement 2.1) was at the lowest end of the reading achievement continuum for this group of children, and he had the most events of Reading and Behavior Oriented Criticism. Observations of this particular boy during the pre-coding visits isolated several behavior patterns which were not common to the other children. On several occasions he was observed taking away the belongings of other children and only returning them upon repeated pleas from the child to whom they belonged or by the intervention of the teacher.

Typically the focus was on the disruption of other children. His approach to reading assignments was somewhat negative with most of his morning spent wandering around the classroom or involved in some unrelated activity at his desk. The first day of coding coincided with an attempt by Teacher A to lessen the disruptive behavior of this particular child. After the conclusion of the observational period it was noted by the teacher that this was the third attempt at behavior modification.

Teacher A explained to the boy that completion of a reading assignment would result in ten minutes free time during which he could build with an Erector Set. Thus the focus was on reading and the possibility of a reward. The teacher and child agreed that the completion of one workbook page would result in a ten minute break. The system resulted in less disruptive behavior and for four of the five days few critical contacts occurred. However, as previously stated, on the final day 2.27 minutes of the total 2.58 minutes of Behavior-Oriented Criticism was recorded. On this occasion orientation to classroom activities appeared to present this child with an insurmountable problem. The reasons remain indeterminable.

At the conclusion of the observational period Teacher A stated that this boy's non-conforming behaviors were ignored as much as possible as repeated censure served only to exacerbate his difficulties.

Teacher B.-- In the classroom of Teacher B behavioral patterns which distinguished between boys and girls were not easily defined. Movement was purposeful and disruptive behavior seldom coded. Censure was brief with the teacher stating the child's name, defining the misbehavior and directing the boy or girl towards a reading assignment. On several occasions repeated misbehavior resulted in the child being taken on one side or the teacher going to his or her desk. Disapproval and the defining of appropriate behaviors were then whispered.

One low achieving boy received more censure than any other child. Informal observations of this child during reading instruction indicated that he was less capable of sustained attention and that he was more active than the other children. He was eager to learn to read, but sometimes appeared unable to cope with the enormity of the task. Excessive movement was ignored by Teacher B unless disruptive in nature. The Individual Record Sheets for this child show that censure of classroom behavior occurred on one or two occasions each day, except for the fourth day of coding when he was censured on five separate occasions, amounting to 1.03 minutes of critical contacts - 50 percent of the total duration measure for this child for the entire five days of coding. This one day phenomenon was noted earlier in the analysis of the behavior of two boys in the classroom of Teacher A. This particular morning was discussed with Teacher B at the conclusion of the observational period. She commented that it had been a difficult morning for this child and emphasized that many unknown factors could have contributed to his behavior. Similiar to the conclusion of Teacher A she expressed the opinion that excessive criticism only exacerbated the difficulties.

Liss (1966) emphasized that the climate in the classroom is not entirely the making of the teacher. During the post observational discussions both teachers discussed the behavior of individual children in light of their home environment. The acknowledgement of the effect of the home on classroom life may also have contributed to the acceptance of behavioral patterns and the allowances for non-conformity.

Finally, private censure may be an integral component of the behavioral patterns of these individual boys and girls. By taking the child to one side the possibility of peer accolades diminishes.

To summarize, the acceptance of movement, the assignment and pacing of reading tasks based upon a thorough evaluation of the reading strengths and weaknesses of each child, the feedback systems, and the clearly defined procedural guidelines are postulated as some of the underlying structures which resulted in the emphasis on Reading-Oriented dyadic interactions, and the differentiation of instruction based upon individual abilities rather than the sex of the child.

The Survey

Brief informal observations in the classrooms of the survey teachers indicated that the movement of the children was extremely restricted by four of the teachers. In the fifth class, movement appeared to be almost totally unrestricted. Reading activities were clearly defined by the teachers, again with the exception of the fifth. The children in this class proceeded with their reading assignments undirected by the teacher. The differentiation of pacing of individual children could not be detected in the dyadic interactions of any of these teachers. There was a paucity of Reading-Oriented Praise, and feedback to individual children was often missing. It was also observed that three of the teachers did not sit with the children during reading instruction, but stood to one side reading many of the questions from a teacher's manual. However, extensive coding would be required to determine whether differential pacing actually existed. Differentiation in the level and content of the materials was evident. In three of the classrooms the lack of clearly defined procedural organization appeared to distract from the reading lessons. In the classroom of Survey Teacher 5 the constant interruptions of individual children greatly interfered with the teacher-child dyadic interactions. It appeared that there were no clearly defined guidelines on "waiting one's turn".

The analysis of the coded data established that censure of boys was greater than girls. The informal observations indicated that much of this criticism appeared to be attempts at controlling movement rather than censure of willful misbehavior.

CHAPTER V

SUMMARY IMPLICATIONS AND CONCLUSIONS

Summary

The Extended Study

In the extended study no significant differences were established between the boys and girls in the major categories of Reading-Oriented and Behavior-Oriented Interactions. The analysis of the sub-categories of the observational code indicated that there were no significant differences except for Behavior-Oriented Criticism. In this sub-category the boys taught by Teacher A received significantly more criticism than the girls. Inspection of the data coded for the two boys who received the most criticism indicated that in each case most of the criticism occurred on a single day.

Excluding the mean duration measures of Behavior-Oriented Interactions for the boys, there was an observed trend in the dyadic interactions of Teacher A towards high achieving boys and girls having shorter and less frequent interactions. A similar trend was

was observed for Teacher B in the sub-categories Reading-Oriented Praise and Instruction; however in the sub-categories related to criticism the results were mixed with several high and low achieving children receiving no Reading or Behavior-Oriented Criticism during the five day observation period.

Dyadic interactional patterns were isolated for both teachers which distinguished between children of high and low reading ability. Patterns which distinguished between boys and girls were less easy to recognize. Slight differences were observed for the boys and girls taught by Teacher A, and no differences were isolated for Teacher B.

Based on the informal observations it was postulated that the acceptance of movement, the assignment and pacing of reading activities based on a thorough evaluation of the reading strengths and weaknesses of each child, the feedback process, and the clearly defined procedural guidelines minimized the differential opportunities of boys and girls as they learned to read.

The Survey

There was a general lack of Reading and Behavior-Oriented Praise in the dyadic interactions of the survey teachers. The percentages of Behavior-Oriented Criticism were greater for the boys than the girls; however it was observed that the significance of these percentages when considering the total amount of criticism was dependent upon the number of interactions. Thus studies which report percentages of criticism and praise without quantifying the number of the interactions taking place are not comparable.

Patterns which differentiated between individual children were not isolated. Each teacher appeared to have developed a personal style of interaction which varied only slightly from child to child. Three of the teachers did not sit with the children during group instructional periods, and feedback to individual children was often missing.

Finally, the Behavior-Oriented Criticism of boys appeared from the informal observations to focus on the control of movement rather than willful misbehavior.

Conclusions

The present study examined how specific skilled and experienced teachers interacted with boys and girls during reading instruction. The findings of the statistical analysis and the comparative survey study provided persuasive evidence that the sensitivity of these teachers to the individual differences of the children that they taught created an environment in which both boys and girls were provided with the opportunity to fulfill their potential in learning to read.

The sub-category Phases of Reading Praise was particularly revealing. Low achieving boys and girls received frequent encouragement and accolades whilst high achieving boys and girls were praised only on those occasions when their endeavors were particularly well executed. This contrasts with the survey in which there was an observed paucity of dyadic praise.

Similarly, the Reading-Oriented duration measures provided evidence that the low achieving boys and girls spent more time interacting with the teacher and that their interactions were often extended and often contained multiple phases of instruction.

The dyadic censure of both boys and girls was minimal. Three boys received more critical contacts than the other boys and girls. In the analysis of their recorded interactions it was observed that for each boy most of the dyadic criticism occurred on one day. This emphasizes the day to day variability in the behavior of these boys in addition to the observed behavioral differences between the boys.

The provisions made by these teachers for successful reading experiences, regardless of the ability of the child, appeared to minimize the pressures of conformity. Finally, the acceptance of movement acknowledged the possibility of physiological immaturity.

General Implications of the Study

Dyadic Interactional Analysis

The observational coding system was a simple and effective instrument which could be utilized in preservice and inservice teacher education. The instruction of novice teachers in the dyadic interactional process would facilitate their study of the interactions of experienced teachers. The use of tape recordings would enable the students to study the nuances of their own interactions with individual children. Thus students could evolve dyadic interactional strategies which were suited to their individual teaching styles, and ultimately enhance the learning opportunities of both boys and girls.

Directions for Further Research

Exploratory studies.-- In the present study several teacher behaviors and components of the teaching process were isolated which appeared to enhance the effective reading instruction of individual boys and girls. There is a need for further exploratory studies of skilled and experienced teachers to extend the findings of the present investigation. Such research would isolate further teacher behaviors which could be of importance in minimizing the difficulties that some boys experience in learning to read.

Experimental studies.-- The findings of the study suggest that experimental investigations of 1) differential praise versus non-differential praise, 2) movement versus non-movement, and 3) the provision of "free" time versus no "free" time, would extend the available information on boys and girls learning to read. The analysis of teacher-child dyadic interactions would be an excellent approach to the evaluation of each treatment.

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APPENDIX A

THE OBSERVATIONAL CODE

THE OBSERVATION SYSTEM

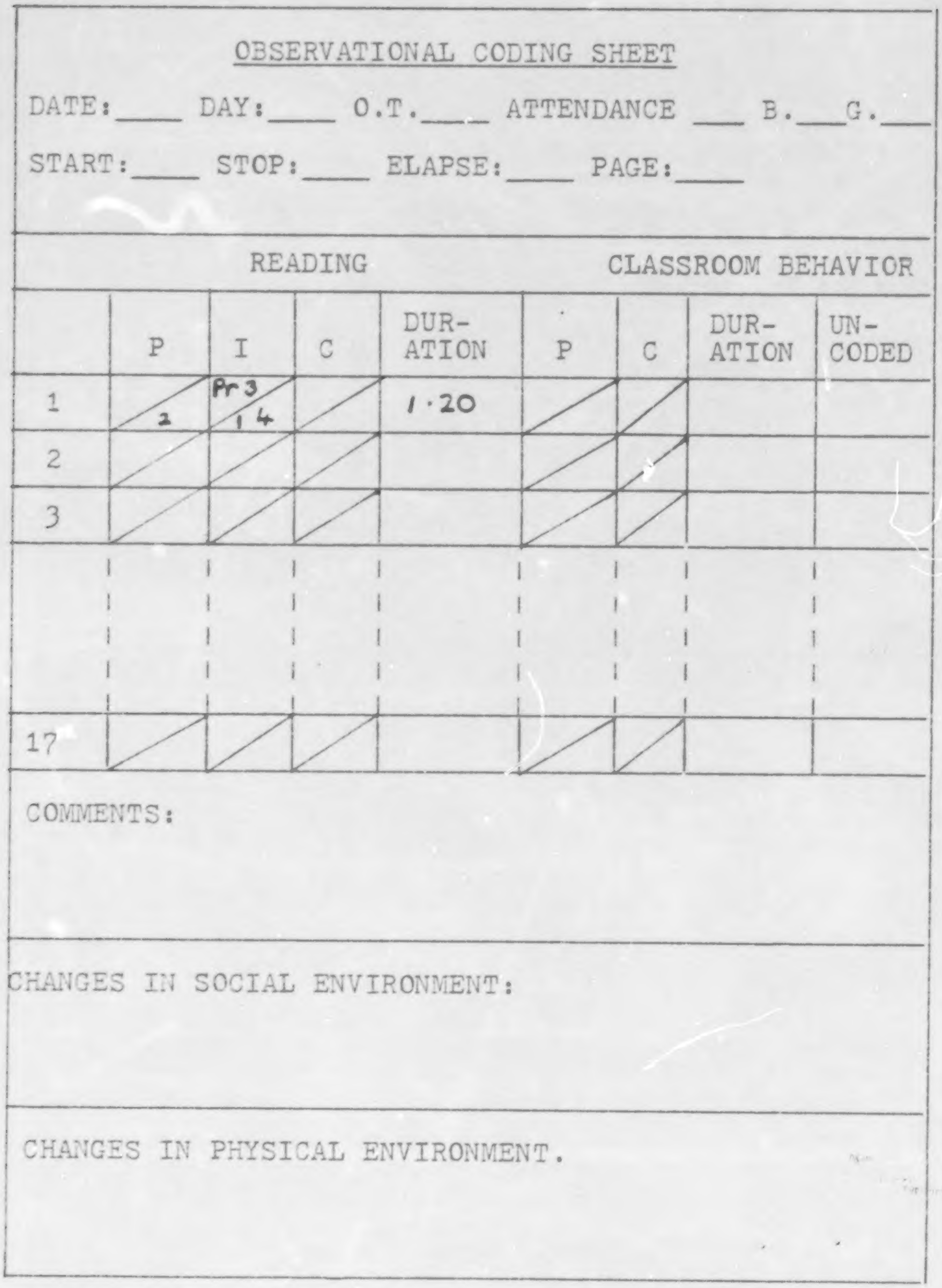
In the design of the observation system consideration was given to the thesis of Herbert and Attridge (1975) and to the dyadic observation system of Brophy and Good (1970). The present system focused on the frequency and the duration measures, and the combinatory codings of Reading-Oriented teacher-child dyadic interactions.

Information for the Observer

The coding sheet.-- The coding sheet was developed to facilitate accurate recordings of the coded data. At the top of the page the observer wrote the date and the day of the week. The heading O.T. denotes the teacher to be observed. Here the observer wrote the initials of the designated teacher. The attendance of boys and girls was noted separately. This procedure indicated whether there were any changes in the ratio of boys to girls. The time was noted at the beginning and at the end of the observation period. The heading Elapsed denoted the length of the observation period.

A practical guide to the coding of interactions.-- The sub-categories of the code formed the headings for a series of boxes, each divided into two segments, within which the recordings were made. The codings of the child were always written in the upper portion of the box, whilst the codings of the teacher were always written in the lower portion. The names were coded by combining the initial and final letters of the name of the child (example: Peter would have been coded Pr).

A coding example.-- On the example of a typical coding sheet (figure 14) the initials of Peter are shown in the upper segment of the first box under the sub-category Reading Instruction. In the lower segment of the box a 1 was inserted which indicated that the teacher initiated the interaction. If this interaction had been child initiated a 1 would have been written next to the coded name in the upper portion of the box. During the dyadic interaction exemplified the teacher also praised Peter for the satisfactory completion of a reading assignment. This was the second phase of the interaction and a 2 was written in the lower segment of the box Reading Praise. The sequence continued when Peter requested further information and a 3 was written in the upper segment of the box Reading Instruction. The teacher then provided Peter with the information that he needed and a 4 was written in the lower segment of the box Instruction. The interaction was thus completed and the ob-



OBSERVATIONAL CODING SHEET

DATE:____ DAY:____ O.T.___ ATTENDANCE ___ B.___G.___

START:____ STOP:____ ELAPSE:____ PAGE:____

	READING				CLASSROOM BEHAVIOR			
	P	I	C	DURATION	P	C	DURATION	UNCODED
1	2	Pr3 14		1·20				
2								
3								
17								

COMMENTS:

CHANGES IN SOCIAL ENVIRONMENT:

CHANGES IN PHYSICAL ENVIRONMENT.

Figure 14. A coding sheet.

server wrote the time 1.20 in the box designated Reading Duration. This indicated that the interaction lasted one minute and twenty seconds. To review, the coded interaction indicated that the child Pr entered into a teacher initiated dyadic Reading Interaction in which instructional information and praise were provided by the teacher. The child Pr then requested further work related information which was then provided by the teacher. The interaction lasted for one minute and twenty seconds. The coding sheet facilitated clear and accurate readings of the coded data. Had this interaction included Behavior-Oriented Praise or Criticism the duration measure would have been maintained and written under Reading Duration. (However, there were few interactions of this nature). The convention established for this interactional analysis was that the duration measure was always written under the initiating category (Reading or Classroom Behavior) of the dyadic interaction.

Inaudible or ambiguous interactions.-- In the eventuality that the observer was unable to hear the dyadic interaction the coded name of the child was written in the box designated for uncoded dyadic interactions. Any interaction which was ambiguous was described in the section Comments featured at the foot of the coding sheet.

Changes in the social and physical environment.--Two further sections were featured at the foot of the coding sheet. The first Changes in the Social Environment was designed for comments concerning the presence of additional adults or children, or the absence of a teacher or child. The second section Changes in the Physical Environment was designed for comments concerning such events as the inclusion of new equipment or the reorganization of the classroom.

The Coding Conventions

Two of the conventions established in the Brophy and Good System (1970) were applicable to the present study.

> 1. Nothing is coded whenever the coder is not sure which child was interacting with the teacher. ... In these situations the occurance of the dyadic interaction is ignored and nothing is coded at all.
> 2. The teacher's intent or apparent intent is the single most important consideration for determination of proper coding when more than one category might apply (p. 83, 2-47).

The second convention was in keeping with the statement made by Herbert and Attridge (1975) "The observer is not to make inferences about teacher intentions (p. 11).

In addition to these conventions, the following were developed specifically for the present investigation.

(1) An uninterrupted dyadic interaction was considered to be a single sequential unit.

(2) The sequence of the interaction was written ordinally.

(3) The beginning of each new interaction was coded as teacher initiated or child initiated. When the interaction was teacher initiated the first phase was recorded by writing a 1 in the lower segment of the appropriate box, whilst the first phase of a child initiated interaction was recorded in the upper segment of the appropriate box.

Events and Phases of Dyadic Interactions

The collation of the data.-- Several alternative methods of data collation were possible. Counting the frequency of the dyadic interactions of each child was essential, and counts were made of the Reading-Oriented and Behavior-Oriented Interactions. However, such counts were not possible for the sub-categories of these major divisions; for example, most of the Praise received by individual children stemmed from Reading-Oriented Instructional contacts and not from interactions of Praise per se. The second method of collation was to count the event of each sub-category occuring during an interaction. This method was particularly useful since it is similar to the system employed by Brophy and Good (1970), thus making comparisons possible. Unfortunately, this method does not give any indication of the multiple phases of each interaction, and was therefore inappropriate when addressing the second question of the present study.

The following dyadic interaction illustrates the differentiation between frequency, event and phase.

Teacher, "Peter read this sentence to me".

Peter, "Up and away went the pl....".

Teacher, "Good. Look at the e Peter. What does it tell us about the a?"

Peter, "A says its name and we don't say the e".

Teacher, "Good, and you know the sound of N. See if you can say the word".

Peter, "Plane".

Teacher, "Good".

This interaction was coded in the following manner (Figure 15).

READING				CLASSROOM BEHAVIOR		
P	I	C	D	P	C	D
369	Pr 258 147		40			

Figure 15. Events and phases of a single interaction.

This conversation was one interaction and included nine phases. These were divided into three phases of Praise and six phases of Reading Instruction. However, there were only two events occuring during the interaction, the event of the sub-category Reading-Oriented Praise and the event of the sub-category Reading-Oriented Instruction.

Although each of the counting methods has strengths and weaknesses, each was considered essential in various stages of data analysis. Therefore, to maximize the information to be gleaned from the study, total interactions, events taking place during each interaction, and individual phases of each interaction were collated.

APPENDIX B

THE EXTENDED STUDY: EXAMPLES OF COLLATED DATA

INDIVIDUAL RECORD SHEET: TWO

CHILD: Cho O.T. M

BOY	
GIRL	✓

VOCAB.	COMP.	MEAN
1·8	1·6	1·7

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
10·21	9·40 11·40	24	3	14	12	139	26	1	1	11·23	0	0	1	1	·07
10·22	10·45 11·44	21	2	15	12	66	17	3	1	7·82	0	0	5	5	·25
10·25	9·40 11·40	8	2	6	5	34	8	0	0	3·55	2	1	1	1	·08
10·26	9·45 10·40	10	1	1	1	31	11	0	0	2·10	0	0	0	0	·00
10·27	8·48 10·35	9	1	3	3	16	8	0	0	1·18	1	1	4	2	·27
TOTALS		72	9	39	33	286	70	4	2	25·88	3	2	11	9	·67

Total duration of all dyads 26·55

Mean duration of reading interactions ·365

Mean duration of behavioral interactions ·061

INDIVIDUAL RECORD SHEET: TWO

CHILD: Ck O.T. M

BOY	
GIRL	✓

VOCAB.	COMP.	MEAN
5·9	5·6	5·75

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
10·21	9·40 11·40	11	1	3	3	37	12	0	0	2·05	0	0	0	0	·00
10·22	10·45 11·44	3	0	2	2	4	2	0	0	·18	0	0	1	1	·03
10·25	9·40 11·40	7	4	2	2	40	10	1	1	2·65	0	0	0	0	·00
10·26	9·45 10·40	7	8	5	3	54	14	1	1	2·93	0	0	1	1	·05
10·27	8·48 10·35	7	0	2	2	21	7	0	0	1·35	0	0	0	0	·00
TOTALS		35	13	14	12	156	45	2	2	9·16	0	0	2	2	·08

Total duration of all dyads 9·24

Mean duration of reading interactions ·199

Mean duration of behavioral interactions ·04

INDIVIDUAL RECORD SHEET: TWO

CHILD: Hth O.T. M

BOY ☐

GIRL ✓

VOCAB.	COMP.	MEAN
4·9	5·2	5·05

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
10·21	9·40 11·40	9	0	1	1	22	8	0	0	1·13	0	0	1	1	·05
10·22	10·45 11·44	2	0	1	1	6	2	0	0	·40	0	0	0	0	·00
10·25	9·40 11·40	3	2	2	2	11	5	0	0	·83	0	0	0	0	·00
10·26	9·45 10·40	16	6	4	4	61	21	0	0	4·85	0	0	1	1	·03
10·27	8·48 10·35	10	2	3	3	25	10	1	1	1·37	0	0	0	0	·00
TOTALS		40	10	11	11	125	46	1	1	8·58	0	0	2	2	·08

Total duration of all dyads 8·66

Mean duration of reading interactions ·179

Mean duration of behavioral interactions ·04

INDIVIDUAL RECORD SHEET: TWO

CHILD: Ay O.T. M

BOY	✓
GIRL	

VOCAB.	COMP.	MEAN
2·1	2·1	2·1

		Reading									Classroom behavior					
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
10·21	9·40 11·40	12	6	11	6	99	16	0	0	11·62	0	0	2	2	·08
10·22	10·45 11·44	3	0	2	2	4	2	3	1	·92	0	0	1	1	·05
10·25	9·40 11·40	15	6	6	6	47	17	0	0	4·15	0	0	2	2	·10
10·26	9·45 11·40	10	3	2	2	30	10	3	2	3·37	0	0	2	2	·08
10·27	8·48 10·35	18	0	4	4	69	12	11	6	7·52	0	0	8	5	2·27
TOTALS		58	15	25	20	249	57	17	9	27·58	0	0	15	12	2·58

Total duration of all dyads 30·16

Mean duration of reading interactions ·452

Mean duration of behavioral interactions ·215

INDIVIDUAL RECORD SHEET: TWO

CHILD: Dy O.T. M

BOY	✓
GIRL	

VOCAB.	COMP.	MEAN
4·9	5·1	5·0

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
10·21	9·40 11·40	12	0	2	2	49	10	2	1	2·03	0	0	1	1	·03
10·22	10·45 11·44	3	0	3	3	8	3	0	0	·32	0	0	0	0	·00
10·25	9·40 11·40	17	2	2	2	33	13	4	2	1·67	1	1	7	3	1·32
10·26	9·45 11·40	17	4	4	4	77	18	1	1	7·95	0	0	5	2	·37
10·27	8·48 10·35	10	1	2	2	26	8	1	1	2·38	0	0	2	2	·10
TOTALS		59	7	13	13	193	52	8	5	14·35	1	1	15	8	1·82

Total duration of all dyads 16·17

Mean duration of reading interactions ·247

Mean duration of behavioral interactions ·228

INDIVIDUAL RECORD SHEET: TWO

CHILD: By O.T. M

BOY	✓
GIRL	

VOCAB.	COMP.	MEAN
5·1	4·6	4·85

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
10·21	9·40 11·40	8	3	3	2	40	10	0	0	3·40	0	0	1	1	·03
10·22	10·45 11·44	2	0	2	2	4	2	0	0	·23	0	0	0	0	·00
10·25	9·40 11·40	19	1	9	5	81	19	0	0	7·65	0	0	0	0	·00
10·26	9·45 10·40	16	2	4	4	58	15	2	1	7·47	0	0	2	2	·08
10·27	8·48 10·35	10	2	4	4	19	9	0	0	1·70	0	0	2	2	·08
TOTALS		55	8	22	17	202	55	2	1	20·45	0	0	5	5	0·19

Total duration of all dyads	20·64	Mean duration of reading interactions	·353	Mean duration of behavioral interactions	·038

INDIVIDUAL RECORD SHEET: TWO

CHILD: Ike O.T. L

BOY	
GIRL	✓

VOCAB.	COMP.	MEAN
1·5	1·4	1·45

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
11·11	10·10 11·34	12	0	11	6	79	12	0	0	6·48	0	0	0	0	·00
11·12	9·55 11·40	2	2	4	3	15	4	0	0	3·1	0	0	0	0	·00
11·15	9·55 11·28	18	2	16	11	123	20	0	0	8·41	0	0	0	0	·00
11·16	9·50 11·40	8	0	7	5	49	8	0	0	5·13	0	0	0	0	·00
11·17	9·00 11·38	14	0	10	5	93	15	0	0	8·9	0	0	0	0	·00
TOTALS		54	4	48	30	359	59	0	0	32·02	0	0	0	0	·00

Total duration of all dyads	32·02	Mean duration of reading interactions	0·542	Mean duration of behavioral interactions	·00

INDIVIDUAL RECORD SHEET: TWO

CHILD: DM O.T. L

BOY
GIRL ✓

VOCAB.	COMP.	MEAN
6·5	5·4	5·95

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
11·11	10·10 11·34	2	0	0	0	5	2	2	2	·617	0	0	0	0	·00
11·12	9·55 11·40	5	1	5	2	24	5	1	1	1·56	0	0	0	0	·00
11·15	9·55 11·28	14	3	4	4	50	17	0	0	2·12	0	0	0	0	·00
11·16	9·50 11·40	17	6	1	1	79	19	0	0	2·867	0	0	4	4	·132
11·17	Absent														
TOTALS		38	10	10	7	158	43	3	3	7·164	0	0	4	4	·132

Total duration of all dyads 9·13 (weighted)

Mean duration of reading interactions ·163

Mean duration of behavioral interactions ·032

INDIVIDUAL RECORD SHEET: TWO

CHILD: Ms O.T. L

BOY	✓
GIRL	

VOCAB.	COMP.	MEAN
1·7	2·1	1·9

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
11·11	10·10 11·34	13	1	6	6	45	14	0	0	3·16	0	0	0	0	·00
11·12	9·55 10·40	9	4	9	7	45	13	0	0	2·35	0	0	0	0	·00
11·15	Absent														
11·16	9·50 11·40	16	0	20	7	119	16	0	0	10·27	0	0	0	0	·00
11·17	9·00 10·38	16	3	2	2	70	19	0	0	5·97	0	0	0	0	·00
TOTALS		54	8	37	22	279	62	0	0	21·75	0	0	0	0	·00

Total duration of all dyads 27·18 (weighted)

Mean duration of reading interactions ·349

Mean duration of behavioral interactions ·00

INDIVIDUAL RECORD SHEET: TWO

CHILD: Gg C.T. L

BOY	✓
GIRL	

VOCAB.	COMP.	MEAN
6·8	5·8	6·3

		Reading									Classroom behavior				
		N.I.		P		I		C		D	P		C		D
Date	Time	TI	CI	Ph	Ev	Ph	Ev	Ph	Ev		Ph	Ev	Ph	Ev	
11·11	10·10 11·34	5	4	2	1	25	9	0	0	1·41	0	0	0	0	·00
11·12	9·55 11·40	0	0	0	0	0	0	0	0	·00	0	0	0	0	·00
11·15	9·55 11·28	13	2	0	0	36	14	0	0	1·4	1	1	0	0	·067
11·16	9·56 11·40	6	0	0	0	14	5	0	0	·82	1	1	0	0	·117
11·17	9·00 11·38	9	6	6	6	64	13	0	0	6·05	0	0	0	0	·00
TOTALS		33	12	8	7	139	42	0	0	9·68	2	2	0	0	·184

Total duration of all dyads	9·86	Mean duration of reading interactions	·225	Mean duration of behavioral interactions	·09